STATE OF COLORADO

Simmons - DNR, Leigh <leigh.simmons@state.co.us>

Answers for DRMS regarding Defiance Stone's second adequacy questions

Robert Congdon <defiancestone11@gmail.com> Mon, May 12, 2025 at 10:03 AM
To: Leigh Simmons - DNR <leigh.simmons@state.co.us>, Amy Eschberger - DNR <amy.eschberger@state.co.us>

Answers in Blue are Robert's responses.
Red is Ben's.

Let me know if we are missing anything. Thanks. Robert

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505-328-6860

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COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Robert Congdon
Defiance Stone Company LLC.
1929 Dolores Way
Carbondale, CO, 81623

April 18, 2025

Re: Brown Quarry Application (M-2024-023)
Second Adequacy Review

Dear Mr. Congdon,

The Division has completed a review of your response to the initial adequacy review. Comments are organized by rule citation. Please review the following comments and address the numbered items in bold.

Rule 6.3.1 Exhibit A - Legal Description and Location Map

1. Exhibit A was revised to remove references to Peachblow Quarry.
   The legal descriptions of The Yard and Brown Quarry were updated, to give coordinates of permit area vertices in degrees/minutes/seconds.
   Screenshots from Google Earth were included in the text, also showing vertices of two polygons and a line segment.
   The General Location Map given with the original submission was not included, it was replaced with Map G-2, titled "Limestone Quarry E-2 Access Road", with distinct labelling and legend, and projected section lines that allow for easy georeferencing.

   a. **[Response is sufficient]**

   b. **[Response is sufficient]**

   c. **[Response is sufficient]**

   d. ~~**Please remove the Google Earth screenshots since they are not maps and they conflict with the text.**~~ **Done**

   e. **Please check the coordinates given in the legal description, since there appears to be errors when they are plotted, (see Figures 1 and 2). The coordinates given must match the permit area shown on the map.**

f. Since there is a plan to improve Road 8466, use it during operations, and reclaim it to its original contour, the road will be "affected" therefore it must be included in the permit area. Please revise the legal description of the permit area to include the affected road segment, and include its area in the calculation of the permit area acreage.

There will be no improvement or changes in Road 8466. The BLM has request Defiance do maintenance work on the road and clean up and slides or damage to the road. Defiance will provided dust control as needed.

BLM requirements for Defiance Stone regarding road 8466. Primary responsibility to preserve existing road character and public access during mining operations will fall to the Defiance Stone Company.

a. Work reasonably necessary to preserve the existing road.
b. The physical up keep or repair of wear or damage whether from natural or other causes.
c. Replacement of unsafe structures, including those damaged by natural and other events.
d. Maintaining the shape of the road, grading it, permitting drainage, and keeping drainage features open and operable.
e. Essentially preserving the existing character of the routes.
f. Where practicable, Defiance Stone Company shall provide BLM with forty-eight (48) hours advance notice of Defiance Stone Company's intent to undertake routine maintenance on the routes (both public and administrative routes) covered in this authorization. The purpose of the notice is not to make the routine maintenance subject to approval or disapproval by BLM, but rather to maintain open communication and cooperation between the parties and to allow BLM to apprise Defiance Stone Company of any circumstances or conditions that Defiance Stone Company should be aware of in scheduling and undertaking such maintenance, as well as allowing BLM to respond to inquiries from the public about such road work.

9. Extreme circumstances such as landslides and washouts may require more than routine maintenance to restore access along a route. Defiance Stone Company shall not undertake any road work beyond routine maintenance without consulting with BLM.

Figure 1: Plotted coordinates from legal description of The Yard

Figure 2: Plotted coordinates from legal description of Brown Quarry

Rule 6.3.2 Exhibit B - Site Description

2. Exhibit B was revised to discuss the Torriorthents-Rock outcrop complex.

   [Response is sufficient]

3. Exhibit B (c) was revised to describe two ephemeral drainage channels. The text refers to "Appendix B-1", which is presumably an error, and should be Appendix G-1. An attempt was made to estimate peak discharge below the confluence of the two ephemeral drainage channels. The estimate was made using the Rational Method, based on the formula:

$$Q = CiA$$

   Where Q = Discharge
   C = Runoff coefficient (from ASCE table)
   i = Rainfall intensity (from NOAA)
   A = catchment area

   The method is acceptable, and assumptions have been stated. Map G-1 Hydrology Map shows critical information but is illegible.

Please correct the typographical error in the text.

Please provide a full resolution version of Map G-1.

. **No wildlife statement has been included in the application packet. A copy of comments. Please address the CPW comments in a wildlife statement and update the Mining and Reclamation plans (Exhibits C and D) accordingly.**

RE: Brown Quarry, File No. M-2024-023 Colorado Parks and Wildlife Comments
Robert,
Thank you for the opportunity to meet with you regarding your proposed quarry north of Dotsero.

Mapped High Priority Wildlife Habitats that this proposal will interact with include Bighorn Sheep winter range and production area, and Peregrine Falcon nesting sites. After a thorough site visit that allowed a visual inspection of the habitat and provided an understanding of planned operations, CPW does not expect that the proposed project will have negative impacts on wildlife. Most wildlife evidence observed onsite was transient in nature, indicating that while wildlife move through this area but they do not occupy it regularly. No Peregrine Falcon nests have been observed in the immediate area.
CPw's comment letter dated October 22, 2024, includes the following general recommendations to protect wildlfie that utilize the project area and recommends the following BMP's continue to be included in the permit for Brown's Quarry.
Implement a dust suppression program on all dirt access roads and work surfaces that utilize fresh water.
Integrate a weed management plan in agreement with Eagle County's plan to control and eliminate the spread of noxious weeds in and around the area. Invasive plants endanger the ecosystem by disturbing natural processes and jeopardizing the survival of native plants and the wildlife that depend on them.
Re-seed disturbed soils with a wildlife-friendly seed mix recommended by the Colorado Seed Mix tool, which should be utilized to help identify and verify appropriate native plant species for this area and the wildlife species present.
Install appropriate stormwater and erosion control BMPs for any disturbed areas to reduce the transport of sediment off-site. These BMPs should remain in place until revegetation is achieved.
Dogs should not be allowed at the Project location.
Trash and debris should be removed daily.
Lighting should be capped from above to help reduce night-sky light pollution and avoid interference with nocturnal wildlife behavior.
Conduct work only during daylight hours to minimize disturbance to wildlife that utilize this area to protect nocturnal wildlife behavior.
In addition to wildlife habitat, this area is highly used by recreationists. CPW does not recommend a fence that excludes wildlife, but a gate that excludes recreation opportunities within the project area should be considered.
If you have any further questions, please reach out for clarification.

Sincerely,
Molly West
Land Use Specialist

Rule 6.3.3 Exhibit C - Mining Plan

5. Exhibit C (a) was revised to clarify that this is a limestone mine

   [Response is sufficient]

6. Exhibit C (a) was revised to state “Mining operations will commence in the first or second quarter of 2025 subject to permit approval”

   [Response is sufficient]

7. Exhibit C (b) describes the handling of topsoil and subsoil at the site. The depth of topsoil is given as 6 inches, and subsoil as 0 inches, calculated as the average of physical measurements.
[Response is sufficient]

8. Exhibit C was revised to specify that timber removed for operations will be cut into lumber and firewood
[Response is sufficient]

9. Topsoil will be stockpiled outside of drainages and out of the way of mine traffic. Berms will be constructed and piles will be stabilized by seeding (if they are to remain in place for 90 days or longer).

[Response is sufficient]

10. Exhibit C was revised to state that an estimated 16,000 bank cubic yards of stone will be removed, of which 90% will be usable and 10% will be used for backfill.

[Response is sufficient]

11. **[Response is sufficient]**

12. Exhibit C (e) lists major components of the mining operation.

a. [Response is sufficient]
b. [Response is sufficient]
c. [Response is sufficient]
d. [Response is sufficient]
e. [Response is sufficient]
f. [Response is sufficient]
g. [Response is sufficient]
h. What will be the volume and quantity of water storage tanks at the Yard?

2- 250 plastic tanks 1- 2650 plastic tank (wire saw) 1- 750 plastic tank (fire protection) 2-500 plastic tanks quarry (fire protection)

i. How will fuel and other fluids be handled and stored at the Yard?

Fuel will be brought in by a local provider as needed. The maintenance truck will have a 100 gallon steel tank for diesel fuel for the excavator. The loader, trucks and generators will be filled at the yard from the delivery truck. Safety measures will be in place.

b. [Response is sufficient]

c. Exhibit C was revised to describe culverts proposed to be installed in greater detail. Three 18" corrugated metal culverts will be installed in the natural drainage, at the end of the quarry access road. The culverts will extend at least one foot beyond the travel surface (which is given as 12 feet in the table) and are specified in the design to be 25 feet long, with a slope of 15%. There will be a rock wall embankment at the inlet, which will give 4.25 feet of freeboard above the top of the culverts. The culverts specified would convey a maximum flow of 40 cubic feet per second, which exceeds the estimated peak discharge from the 100y24h event (modeled as 36 cubic feet per second).
[Response is sufficient]
Exhibit C was revised to clarify that the existing road (8460) intersects the yard, so no improvements will be made.

[Response is sufficient]

15. Exhibit C (h) describes the use of water at the site. All water will be imported to the site. The Exhibit was revised to specify that water consumption will be up to 6,000 gallons per day, for dust suppression and as a coolant for diamond saws. The text states that sawing water will be contained and reused.
    Please expand Exhibit C (h) to describe how sawing water will be contained and reused, with diagrams if possible. Please also describe how wet fines generated from the saw will be handled and disposed of. Saw water will be captured in plastic tanks and allowed to settled out over night. Clean water float will be pumped to the operating clean water to be reused. Saw settling fines will be put in 1 ton bags. There is a market for the limestone fines. The fines can be used as a cement additive, agricultural additive including neutralizing acidic soils. It also improved soil structure, promotes microbial activity and enhances water retention. They are also used in road bases as they tend not to migrate.

16. Exhibit C (i) states that "Groundwater will not be encountered in this operation". An addendum was made to Exhibit B to clarify that the nearest known aquifer is the Eagle River alluvium, which is 500 feet below the site. An addendum was made to Exhibit C to specify that the nearest wells are over 3500 feet away, completed in the alluvial aquifer, and that there are no known bedrock aquifers within or near the mining area.
    [Response is sufficient]

17. (This adequacy item has been left unchanged; it will be reviewed when a full resolution copy of Map G-1 has been provided)
    Exhibit C (i) also describes surface water at the site. Two natural drainages are described but are not shown on any map. A plan to control runoff from the Quarry is described, where water will be diverted towards the two natural drainages and filtered through "straw bales or other sediment trapping mechanisms" before flowing to the ephemeral channel below. A rock check dam is proposed to be constructed in the ephemeral channel down-gradient of the Quarry. Details of the rock check dam are given in Exhibit C-2, including dimensions. No upland diversion is proposed, so the entire watershed is proposed to be treated as disturbed area run-off.

    Ben

    a. **Please show the natural drainages on a map**
    b. **Please show all surface water control features on a map**
    c. **Please provide design criteria for the rock check dam (What is the statistical precipitation event it is designed to contain? What is the size of the watershed reporting to it? What is the up-gradient channel length and gradient? What size rip-rap will be used?)**
    d. **Please revise the text Of Exhibit C (i) to include a description of surface water control structures at the Yard**

18. Exhibit C has been revised, and an addendum added, to specify that the benches created by mining will be graded so as to drain back towards the hillside, and then to either side, from a high point in the middle of the bench. Surface water will be retained withing the disturbed area and allowed to infiltrate/evaporate within 24 hours, or discharge through permitted stormwater outfalls. A spill prevention control and countermeasure (SPCC) plan will be put in place, and a Colorado Discharge Permit System (CDPS)/National Pollutant Discharge Elimination System (NPDES) permit will be obtained. Upstream of the outfall locations, sediment will be controlled through the use of anchored straw bales or similar.

    The response is sufficient, pending a full resolution copy of Map G-1.

19. **[Response is sufficient]**

20. **[Response is sufficient]**

21. Exhibit C was revised to specify that no explosives will be used.

    [Response is sufficient]

22. Pursuant to Rule 6.5(4), a Geotechnical Stability Exhibit has been included with the application. The geotechnical stability analysis was reviewed by Ben Hammar at my request. Ben's memo is appended to this letter, and the following questions are taken from it:

    a. **Within section GS-1 of the application, the operator provided a slope stability analysis of a previous iteration of the reclaimed slopes for the proposed site. Per Rule 6.5(2), please provide an engineering stability analysis for the currently proposed final reclamation slopes and highwalls as described in the reclamation plan or a rationale as to why the proposed stability analysis is appropriate to the reclaimed slopes.**

    b. **Within section GS-1 of the application, the operator states "there are no known geologic hazards on the proposed site." It is unclear to the Division that any geologic inspection and evaluation of the site has been conducted that would confirm this statement. Please provide additional information further confirming that no significant discontinuities or faults are present within the slope surface which may contribute to a slope failure.**

Rule 6.3.4 Exhibit D – Reclamation Plan

23. **[Response is sufficient]**

24. Exhibit D has been revised significantly, and an addendum added, to change the proposed post-mining topography at the quarry. The revised plan proposes to leave benches of limestone bedrock, with a rise of 6-8 feet and a tread of 15 feet. Loose piles of waste rock/salvaged soil will be mounded on each bench as mining proceeds and seeded in place. The new plan avoids the mass balance problem in the original application.
    Please revise the text of Exhibit D to remove references to "Approximate Original Contour" in the quarry area. Please make explicit the differences in the reclamation plan between the yard and the quarry.

25. **[Response is sufficient]**

26. **[Response is sufficient]**

27. A cost estimate is provided in Exhibit D (2)
    [This item is a placeholder for now, further comments on the cost estimate will be made later in the adequacy review process following clarification on aspects of the Mining and Reclamation Plans]

Rule 6.3(5) Exhibit E – Maps

28. Map G-2 satisfies the requirements of the general location map. A full resolution copy of Map G-1 will need to be submitted before it can be properly reviewed. In general, the application must include a Mine Plan Map and a Reclamation Plan Map, that show the entire permit area. Screenshots from Google Earth are not acceptable. For map requirements please review Rules 6.2.1(2) and 6.3.5.
    Please revise the Mine Plan Map and Reclamation Plan Map to show changes to the plans discussed in items (9, 11, 12, 13, 17 and 24). Please also include the following features on the maps:
    - **The permit boundary**
    - **Topographic contour lines**

- **Topsoil storage piles**
- **Surface water control structures**
- **Existing and improved roads, including BLM Roads 8460, 8466, the BLM designated administrative access road, and the Yard Entrance Road**
- **All facilities described in Exhibit C (e)**

Rule 6.3(6) Exhibit F - Other permits

29. Exhibit F was revised to specify that an Eagle County special use permit and a stormwater discharge permit will be required.

    [Response is sufficient]

Rule 6.3(7) Exhibit G – Source of Legal Right to Enter

30. Exhibit G provides a BLM categorical exclusion number and a Serial number as the source of Legal Right to Enter

    Forth coming from the BLM

    Please provide additional documentation associated with the references given in Exhibit G that demonstrate a Legal Right to Enter. This may include a copy of a lease, deed, abstract of title, a current tax receipt, or a signed statement by the Landowner(s) and acknowledged by a Notary Public stating that the Operator/Applicant has legal right to enter to conduct mining and reclamation.

Rule 6.3(9) Exhibit I – Proof of Filing with County Clerk

31. **[Response is sufficient]**

Rule 6.3(12) Exhibit L – Permanent Man-Made Structures

32. **[Response is sufficient]**

The decision due date for the Brown Quarry application is May 23, 2025. If necessary, please request an extension to this date that will give you sufficient time to respond to this adequacy review, and for the Division to review your response.

Sincerely,

Leigh Simmons
Environmental Protection Specialist

cc: Ben Langenfeld; benl@lewicki.biz

Appendix 1: Ben Hammar memo

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Date: **April 17, 2025**

To: **Leigh Simmons**

CC: **Amy Eschberger**

From: **Ben Hammar**

RE: **Brown Quarry File No. M2024023**
Second Adequacy Review

Leigh,

As requested, I have reviewed the requested sections of the Brown Quarry application, DRMS permit No. M2024023, created by Lewicki & Associates (Lewicki) on behalf of Defiance Stone Company LLC. The purpose of this memo is to quickly summarize Lewicki's report methodologies, analyses and recommendations in relation to the Rules and requirements of the Division, and address portions of their geotechnical analysis and reclamation plan which are inadequate based on Rules 3.1.5(3) and 6.5. Questions and comments regarding the requested sections meant to ensure all Rules and requirements are satisfied will be summarized at the end of this memo.

Reclamation Plan and Geotechnical Analysis Overview

As noted earlier, this memo will address the sections of the Brown Quarry application requested by Leigh Simmons, the geotechnical analysis associated with the currently proposed reclamation plan for the Brown Quarry. A brief summary of the reclamation plan is included to provide context for the broader discussion of the provided analysis.

Per information provided by Leigh Simmons and the current proposed reclamation plan, the operator intends to set aside the topsoil of located atop the areas planned to be mined, and following the completion of mining will use waste limestone to create small mounds on the benched areas to facilitate plant growth in support a post-mining land use of wildlife habitat and reduce erosion of the benches. Per the operator, the benched areas will be approximately 15' wide, 435' feet long, and arranged in 6'to 8' lifts vertically. The operator has also confirmed in their "Exhibit D Addendum" that each soil mound will be a minimum of two feet tall with 4:1 slopes. This plan was developed in response to mass balance issues that prevent the original plan of creating a 2:1 slope along the length of the mined area.

Lewicki provided a geotechnical stability analysis as a supporting document to the above referenced reclamation plan. Their geotechnical analysis was performed using parameters based on a previous iteration of the reclamation plan for the site, when the proposed plan was to fully slope the mining slope to 2:1. A simulation was conducted using GALENA slope stability software, with material properties based on weathered limestone bedrock and intact limestone bedrock classifications found in the SME Mining Reference Handbook.

Using these parameters Lewicki arrived at an overall factor of safety (FoS) of greater than 100 for their generated slope. An example bench was also studied, with a resultant FoS of approximately 1.6 according to the operator.

Recommendations

In general, the analysis performed by Lewicki was performed using acceptable assumptions for the case that was studied. However, this case does not appear to be relevant to the conditions currently agreed upon for final reclamation. Lewicki states that this was done due to the difficulty of performing a slope stability analysis on the current proposed reclamation plan, however the case used in place appears to be different enough from the current plan to be irrelevant.

Lewicki also states "there are no known geologic hazards" on the proposed site. It is the Division's understanding that this statement serves to state that no significant faulting or other discontinuities that may contribute to a slope failure within the limestone rock face are present. Given that no full geologic study was performed and SME Handbook values were used in their analysis, additional justification regarding the stability of the rock face should be requested. As such, the following comments should be incorporated into an adequacy letter:

1. Within section GS-1 of the application, the operator provided a slope stability analysis of a previous iteration of the reclaimed slopes for the proposed site. Per Rule 6.5(2), please provide an engineering stability analysis for the currently proposed final reclamation slopes and highwalls as described in the reclamation plan ***or*** rational to why the proposed stability analysis is appropriate to the reclaimed slopes.
2. Within section GS-1 of the application, the operator states "there are no known geologic hazards on the proposed site." It is unclear to the Division that any geologic inspection and evaluation of the site has been conducted that would confirm this statement. Please have the operator provide additional information further confirming that no significant discontinuities or faults are present within the slope surface which may contribute to a slope failure.

This concludes my review of the requested sections of the Brown Quarry Application, created by Lewicki & Associates on behalf of Defiance Stone Company LLC. If you have any questions feel free to contact me.

Sincerely,

Ben Hammar
Environmental Protection Specialist
(720) 793-2988
ben.hammar@state.co.us