



GARY R. HERBERT  
Governor

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Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

December 28, 2017

Richard Parkins, General Manager  
Fossil Rock Resources, LLC  
225 North 5<sup>th</sup> Street, Suite 900  
Grand Junction, Colorado 81501

Subject: Midterm Completion Response, Fossil Rock Resources, LLC, Fossil Rock Mine, C/015/0009, Task ID #5561

Dear Mr. Parkins:

The Division has reviewed your application. The Division has identified deficiencies that must be addressed before final approval can be granted. The deficiencies are listed as an attachment to this letter.

The deficiencies authors are identified so that your staff can communicate directly with that individual should questions arise. The plans as submitted are denied. Please resubmit the entire application by no later than January 31, 2018.

If you have any questions, please call me at (801) 538-5325.

Sincerely,

Daron R. Haddock  
Coal Program Manager

DRH/sqs

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## Technical Analysis and Findings

### Utah Coal Regulatory Program

**PID:** C0150009  
**TaskID:** 5561  
**Mine Name:** FOSSIL ROCK MINE  
**Title:** MIDTERM COMPLETION RESPONSE

### General Contents

#### Identification of Interest

*Analysis:*

The MRP does not meet the State of Utah R645 requirements for Identification of Interests.

General Chapter 1 outlines the ownership and control information of Canyon Fuel Company, the owner of the Fossil Rock Mine. General Chapter 1 is being updated for all the Bowie Resource Partners mines, including the Fossil Rock Mine, in Task #5566, 'Sufco, General Chapter 1 Update'. When this task is approved by the Division, the chapter for Identification of Interests must be updated in Fossil Rock's MRP.

kstorrar

#### Violation Information

*Analysis:*

The application does not meet the State of Utah R645 requirements for Violation Information.

An AVS Permit Evaluation Report was generated for the Fossil Rock Mine C/015/0009 on November 29, 2017. The report listed 13 Violations. Violation 10 is outstanding. Linking entity is James J Wolff. The remaining violations are coded "conditional", indicating a settlement, payment or pending challenge. Linking entity is John Joseph Siegel Jr.

*Deficiencies Details:*

The application does not meet the State of Utah R645 requirements for Violation Information.

An AVS Permit Evaluation Report was generated for the Fossil Rock Mine C/015/0009 on November 29, 2017. The report listed 13 Violations. Violation 10 is outstanding. Linking entity is James J Wolff. The remaining violations are coded "conditional", indicating a settlement, payment or pending challenge. Linking entity is John Joseph Siegel Jr.

ssteab

#### Right of Entry

*Analysis:*

The MRP meets the State of Utah requirements for Right of Entry.

The MRP includes Right-of-Entry documentation. The Coal Lease documents are given in Appendix 4-2.

kstorrar

#### Permit Term

*Analysis:*

The MRP meets the State of Utah R645 requirements for a Permit Term.

A permit is issued for the Fossil Rock mine with an effective starting date of February 21, 2015 and an expiration date of February 21, 2020.

kstorrar

## Operation Plan

### Topsoil and Subsoil

*Analysis:*

The application meets the requirements of R645-301-230 Soil Operations Plan, because the topsoil pile volume is reported as 755 CY in Section 8.7, p. 5 & 6. This soil was salvaged during a 1981 expansion from North of the bathhouse (Appendix 8-1 and Plate 3-1). The soils in that location were riparian stream bank along Cottonwood Creek.

Section 3.5.4 Backfilling and grading plan describes redistribution of the available topsoil to a depth of six inches (item e). The available topsoil will cover approximately 0.9 acres to a six inch depth. The Division recommends that the topsoil is used to restore the riparian areas (0.79 acres).

pburton

## Hydrologic General

*Analysis:*

The MRP meets the State of Utah R645 requirements for Hydrologic Diversions.

A complete mine site inspection was conducted June 20, 2017. Hydrologic conveyance features on the ground are consistent with narratives and designs in the approved MRP. Re-mining of the waste rock site has altered Ditch DA from the approved design. Midway along the ditch's longitudinal profile a rip-rapped ramp drops the ditch from the elevation of the upper lift to the elevation of the lower lift. Section R645-301-742 discusses implementing such techniques with the narrative "diverting runoff using protected channels". The elevation adjustment has improved the function of the ditch during re-mining of the waste rock site.

kstorrar

## Reclamation Plan

### Topsoil and Subsoil

*Analysis:*

The application meets the requirements of R645-301-243, because the MRP Section 3.5.5.1 references Appendix 8-3, Post-Grading Sampling Program. However, the Division also notes that there is no line item in the Bonding Appendix 1 for soil sampling or fertilization at the site, although Section 8.9 specifies fertilizer application based on soil testing described in Appendix 8-3. It is recommended that the Permittee re-evaluate the soil sampling commitments and fertilizer treatments described in the MRP, in consultation with the Division soil scientist, prior to revising the bonding calculations.

Appendix 9-1C Final Reclamation Soil Testing refers to Appendix 9 for a description of test plot soil nutrient application. Appendix 9-2 references pages 15-17 and 39 – 44 of Appendix 9 for the test plot design (Appendix 9-2, p. 1).

**However, pages 16-48 of Appendix 9-1 are missing from both the Division's and the Permittee's copies of the MRP.** The cover letter to this application (Incoming 11272017. 5561) states that missing pages 15-22 and pages 28-30 might be found in Appendices 8-1 (Borrow Area), 8-2 (Soils and Vegetation Test Plot Monitoring) and 8-3 (Post-Grading Sampling Program). Missing pages 31-48 related to bonding and are now included in Bonding Appendix 1. Missing pages 23-27 described sampling methods and are now part of the Chapter 8 and 9 appendices. The Section 3.5.5.1 reference was changed to Appendix 8-3, Post Grading Sampling Program.

The Division notes that there is no line item in the bonding Appendix 1 for soil testing or fertilization at the site. It

appears that fertilizer was applied and found successful in the test plot treatments that were evaluated in 1987 and consequently, Section 8.9 describes the application of 50 lbs of P, 80 lbs N and 80 lbs K per acre, pending analysis of soils. Soil testing is outlined in Appendix 8.3. Section 8.3 describes 3 composite samples on 100 foot centers over the 10.39 acre disturbed area (45 sample locations X 3 = 135 samples). Presumably the samples will be analyzed for EC using a field pH meter. The objective is to allow for burial of soils with EC values of greater than 8 mmhos beneath the surface twelve inches and burial of soils with EC values of greater than 16 mmhos deeper than four feet. A subset of 20-30 samples will be analyzed for fertility. Since bonding is a worst case scenario, a line item for soil sampling and fertilizer should be included for the 10.39 acres at the Fossil Rock Mine.

Based upon the Division's experience gained in the intervening 30 years since the 1988/89 Appendices 8-3 and 9.2 were written, there are several modifications that could be made to the MPR information: 1) the number of soil samples to be analyzed is excessive. 2) the lbs of N, P, K per acre is excessive. 3) An organic fertilizer could be evaluated. Therefore, it is recommended that the Permittee re-evaluate the soil sampling commitments and fertilizer treatments described in the MRP, in consultation with the Division soil scientist, prior to revising the bonding calculations.

Soil Preparation includes ripping the pad areas to 12- 24 inches at the outset of backfilling and grading and scarifying the backfilled/graded surface ( Section 3.5.5.1, p. 68). Soil sampling will be conducted per Appendix 8-3, Attachment C ( Section 3.5.5.1, p. 67). One ton/acre hay will be incorporated into the final graded surface with surface roughening (Sec. 3.5.4, p. 62). Seeding and transplanting is described in Section 3.5.5.2. There are two seed mixes: riparian area mix (Table A9-3) and the grassland-shrub mix (Table A9-1) both found in Appendix 9-1.

Reclamation earthwork costs include mulching over 10.39 acres ( Appendix 8-1, Revegetation Costs Fossil Rock Mine Revegetation p. 1 of 1). Of the 10.39 acres, 9.61 acres will be seeded to grassland/shrub mix and 0.79 acres will be seeded to riparian mix. The riparian seed mix is also included in Appendix 8-1 for the purpose of cost estimating. The shrubland-grass mix was not included in the Appendix 8-1.

pburton

## Revegetation Standards for Success

### Analysis:

The mid-term review of item H meets the the State of Utah R645 requirements for revegetation standards for success at R645-301-356. A site visit of the Fossil Rock mine was conducted on Tuesday, August 8th, 2017 to locate the two vegetation reference areas. Representatives from Bowie included Bryant Bunnell and Clay Mecham. The two reference areas are described in Chapter 9, Section 9.2.3 of the Fossil Rock MRP. One is in the Riparian Community, and one is in the Grassland Shrub Community. Their locations are marked on the vegetation map, Map A, Appendix 9-1. The text in section 9.2.4 (Vegetation map) notes that; 3 / 6 A vegetation map was compiled with the aid of aerial photographs printed in a scale of approximately 528 feet-to-the-inch (1 :6, 3346), assisted by ground-truthing surveys. The most recent available aerial survey (1977) was used. The final map was later transferred to a contour map at the same scale. Area measurements were made for each community type by cutting up one of the maps and weighing the various pieces according to the community type. This gave percentages for each community type in the mine plan area and permitted calculating the acreages involved. This map was used to locate the two reference areas that were marked with flagging. A qualitative assessment was conducted on November 14 by by Patrick Collins (Mount Nebo Scientific) for Bowie verifying the areas ability to represent the success standards of revegetation. Documentation of the qualitative assessment will be provided in the 2017 annual report for the Fossil Rock Facility.

jhefric

## Stabilization of Surface Areas

### Analysis:

The application meets the requirements of R645-301-244, Stabilization of Surface Areas, because various erosion control treatments are described for use in Section 3.5.4.3. For contemporaneous reclamation, For contemporaneous reclamation, Section 3.5.5.2 states that slopes greater than 20% will be either hydroseeded or broadcast. The Section further states that contemporaneously reclaimed, hydroseeded areas will be followed by an application of wood fiber mulch, although it is not clear at what slope hydromulch will be used. The Division recommends hydromulch on slopes of 2h:1v, in addition to the hay/straw application.

Section 3.5.1 (p. 56-57) provides a contemporaneous seed mix of thickspike wheatgrass, Indian ricegrass, sicklepod milkvetch and yellow sweet clover.

## Bonding and Insurance General

### *Analysis:*

The application does not meet the State of Utah R645 requirements for General Insurance and Bonding.

Several references are made within the narrative describing soil sampling prior to final reclamation. Volume 4 pages 115 - 116 describe a detailed soil sampling scenario to determine if coal mine waste materials at the Waste Rock Storage Facility comply with criteria contained in the Division's "Guidelines for Management of Topsoil and Overburden." Soils and other materials deemed unacceptable due to sampling will be removed, buried, and covered with 4 feet of non-acid/non-toxic forming materials.

Additionally, numerous references mention the use of fertilizer to condition the soils prior to final reclamation. Volume 4 page 53 proposes a methodology to prepare soils for final revegetation to restore the Waste Rock Storage Facility to the approved post-mining land uses of wildlife habitat and livestock grazing. Step 3 of that methodology details a Fertilizer Application scheme where Ammonium Nitrate and Triple Superphosphate will be broadcasted over the areas to be seeded.

Neither the proposed soil sampling nor the proposed fertilizer soil amendments to be used in final reclamation are included in the reclamation bond calculations.

### *Deficiencies Details:*

The application does not meet the State of Utah R645 requirements for General Insurance and Bonding. The following deficiency must be addressed prior to final approval:

R645-301-830: The Permittee must provide adequate bond coverage to account for the sampling and soil amendments proposed in volume 4 of the MRP. A line item for soil sampling and fertilizer should be included in the bond for the main facilities site as well as the waste rock disposal site.