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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

5162

May 22, 2017

CERTIFIED MAIL

7003 2260 0003 2350 7507

Rick Parkins
Fossil Rock Resources, LLC
225 North 5th Street, Suite 900
Grand Junction Colorado 81501

Subject: Findings of Fact, Conclusions, and Order for Violation #21173 Fossil Rock Resources, LLC, Fossil Rock Mine, C/015/0009

Dear Mr. Parkins:

On May 16, 2016, an Informal Conference was held to review the assessment for Violation #21194. As a result of a review of all pertinent data and facts, including those presented in the Informal Conference, the attached document constitutes the findings of fact, conclusions, and order.

Because the decision was to vacate the violation, the fine is no longer valid.

Sincerely,

Dana Dean, P.E.
Associate Director
Assessment Conference Officer

DD/vs

Enclosures

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**BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH**

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**IN THE MATTER OF THE
INFORMAL ASSESSMENT
CONFERENCE for PROPOSED
ASSESSMENT; VIOLATION No.
N21173, FOSSIL ROCK
RESOURCES, LLC, FOSSIL
ROCK MINE, C/015/0009, EMERY
COUNTY, UTAH**

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**FINDINGS of FACT,
CONCLUSIONS OF LAW
AND ORDER**

CAUSE NO. C/0015/0009

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On May 16, 2016 the Division of Oil, Gas and Mining (Division) held an Informal Assessment Conference as provided for by Utah Admin. Code R645-401-700 (2017) in response to the written request by Fossil Rock Resources, LLC (Fossil Rock) to review the fact of violation and amount assessment for Notice of Violation NO21173 (NOV), issued to it on April 14, 2016 for operations at the Fossil Rock Mine, C/015/0009, Emery County, Utah.

ISSUES

The Division in its Notice of Violation found that Utah Admin. Code rule R645-301-732.300 had been violated. This rule requires that all diversions be constructed and maintained to comply with the requirements of the Utah Admin. Code rules. The Division assessed a fine of \$176.00.

PARTIES

Dana Dean, Associate Director of the Division of Oil, Gas and Mining served as the hearing officer. The hearing was conducted as an informal adjudicative proceeding. Keenan Storrar and Steve Christensen represented the Division in defense of the fact of violation. Vickie Miller, Chris Hansen, Art Etter, and Rick Parkins represented Fossil Rock and presented the position and arguments on its behalf.

No recording or transcript of the conference was made.

Based on the information provided at the conference, the statements presented by those speaking, and on information in the files of the Division the following Findings and Conclusions were made.

FINDINGS OF FACT

- The violation was written because at the inspection the inspector noted:

- Ditch DA was box cut and not 2:1 V-cut as per plans in the MRP
 - Ditch DB was cut-off by a temporary access road and was not re-established and
 - An ASCA at the end of the subsoil did not have a flow path to the sedimentation pond
- Fossil Rock was able to provide updated information (see attachment) that Ditch DA is in Mancos Shale and maintaining a 2:1 sloped v-cut is impossible. The ditch was box cut because they had recently cleaned it with a backhoe. Over time, the 2:1 slope would be restored with siltation from flow. At no time was the ditch too small to pass the design storm. Fossil Rock has also since updated their MRP to show this natural process and changing shape. At all times it will be adequate to pass the design storm.
 - Fossil Rock was able to show, that though hard to see without measuring, Ditch DB was indeed there, and exactly as designed in the plan. The flow depth for the ditch is a mere 4 inches. Fossil Rock provided pictures and cross sections to prove that the ditch was as designed.
 - Fossil Rock was able to show, that though hard to see without measuring, the flow path in the ASCA area was also as per the plan design.

CONCLUSIONS OF LAW

1. Drainage controls were properly maintained and capable of passing the design storm. A perfect V-cut or trapezoid is impossible to maintain in soils and is not required. R645-301-732.300 does not require a ditch to be a certain shape, but to comply with R645-301-742.100 and R645-301-742.300. Those rules require sedimentation structures to be designed using Best Technology Currently Available (BTCA) to prevent additional contributions of sediment to stream flow or to runoff outside the permit area, meet effluent limitations, minimize erosion and to be stable. There is no evidence that the box-shaped ditch that was cleaned out was in violation of any of those standards.
2. Ditch DB and the ASCA were proven to be in place as required.
3. The fact of the violation should not stand.

ORDER

NOW THEREFORE, it is ordered that:

1. The fact of the violation is not upheld and this violation and associated fine are hereby vacated.

SO DETERMINED AND ORDERED this 22nd day of May 2017



 Dana Dean, P.E., Associate Director
 Conference Officer



C/015/009 Incoming
cc: Keenan

Chris D. Hansen
Dir. Of Regulatory Compliance
and Government Relations
225 North 5th Street, Suite 900
Grand Junction, CO 81501
(970) 261-1425

May 6, 2016

Mr. Daron Haddock
Environmental Manager, Coal Program
Utah Division of Oil, Gas and Mining
Department of Natural Resources
1594 West North Temple, Suite 1210
Salt Lake City, UT 84116

RE: Fossil Rock Resources, LLC Permit #C0150009, Waste Rock Site Ditch Evaluation and Request to Terminate NOV #21173

Dear Mr. Haddock:

Bowie Resource Holdings, LLC (BRH) purchased the Trail Mountain Mine and the Cottonwood Waste Rock site from PacifiCorp in 2015 and consolidated these properties under the company name Fossil Rock Resources, LLC (FRR) as a subsidiary of Canyon Fuel Company, LLC, itself a subsidiary of Bowie Resource Partners, LLC (BRP) and BRH. Prior to that purchase, PacifiCorp had performed maintenance on the waste rock site ditches in an effort to clear debris from the ditches and re-establish other drainage controls at the site following a significant rainfall event. As part of the maintenance activities, Ditch DA was cleared using a trackhoe to clear or re-establish the ditch throughout most of its length. That maintenance work resulted in a ditch geometry that no longer retained the shape of the original ditch designs contained in the mining and reclamation plan.

On April 14, 2015, Fossil Rock Resources LLC received a Notice of Violation (NOV) from the Utah Division of Oil, Gas and Mining (Division or DOGM) at the Fossil Rock waste rock site for not properly maintaining diversions as they are designed in the mine permit. There were a total of three non-compliance issues specifically noted. The NOV was issued based on an Office of Surface Mining (OSM) oversight inspection performed on 3/08/2016. Initially, FRR intended to have the site immediately brought back into compliance by reconstructing the diversions to their original designs with a mini-excavator. After reviewing the site it was clear that although the ditches have been reconstructed to dimensions that are not shown on the drawings, the perceived compliance issues do not inhibit the designed surface flows from reaching the sediment pond as intended in the permit.

Instead of re-establishing the ditches and diversions to their original designs, FRR proposes to submit new ditch designs based on what will actually work in the field for this site based on the site configuration, access to ditches and sediment controls for maintenance work, and the stability characteristics of native and fill materials at the site. However, prior to FRR submitting new ditch designs, the company wants to present the Division with the information contained in this letter that demonstrates the ditches are constructed in such a manner as to convey runoff with appropriate flow capacities to the sediment pond as required by the permit and that there is no danger of creating off-site impacts if the ditches are allowed to remain in their current state until the new designs are submitted and approved. FRR requests the Division terminate the NOV based on the information contained within this letter.

Observations

On April 25th, BRP employees Art Etter, Vicky Miller and Chris Hansen visited the site to evaluate the issues identified in the Division's NOV #21173. Each of the three compliance issues noted in the NOV were observed and the findings made are as follows.

1. The NOV states that ditch DA was not maintained in the configuration as originally designed. The original design is a v-ditch with side slopes of 2.5:1. The ditch has been maintained as a box ditch. Both the original design and existing dimensions are shown on the attached drawing. One

of the tasks to be completed during the site visit was to verify the capacity of the existing ditch at least equaled the original design flow of 18.9 cubic feet per second. After inspection it was clear the existing ditch dimensions will function with a flow capacity of at least 23 cubic feet per second, a far greater capacity than originally designed (see calculations in Flow Capacity section). A box configuration will require more maintenance because of the steep side slope and the increased propensity for erosion of the side slopes during high flow events. However, at this site the nature of the native soils and fill material as well as access for equipment to perform ditch maintenance currently favor a geometry other than a "V"-shape. See the drawings in the Flow Capacity section for dimensions of Ditch DA at four locations that were deemed representative of the configuration of the existing ditch.



Photo 1: Ditch DA



Photo 2: Ditch DA

2. The NOV states that, "ditch DB is not-existent... and an access road has been constructed in its place." During our site visit we found the ditch is indeed in place though there is evidence of previous equipment access in the area and the access area had been roughened, see Photo 3. Two cross sections of ditch DB were measured where the ditch is the smallest. The actual flow capacities are

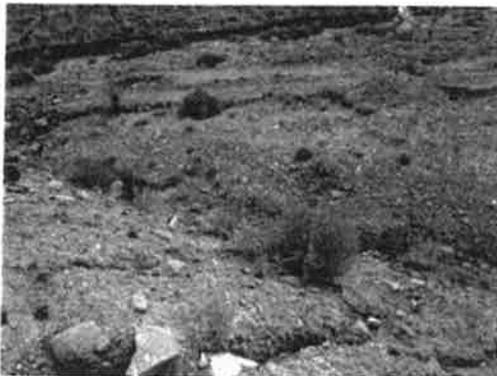


Photo 3: Equipment Access in Background

presented in the Flow Capacities section of this report. The original design flow is 2.52 cubic feet per second, with a flow depth of 4 inches. It should be noted that the entirety of ditch DB shows no evidence that the ditch has ever conveyed the 2.52 cubic-foot-per-second design flow.

After a review of the permit documents, specifically Appendix C, the design flow for ditch DB was designed based on a watershed of 3.4 acres. FRR is not currently aware why the original design watershed was so large. The actual watershed is 1.1 acres in size. This is likely the reason why there is no evidence that ditch DB has undergone the permitted design flows. The two watershed boundaries are shown in the attached drawing. See Photos 4 and 5 for pictures of the two cross sections measured.

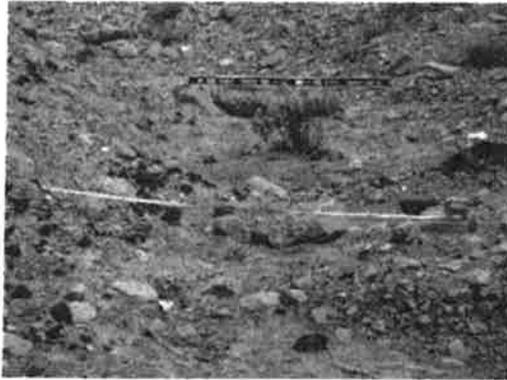


Photo 4: Ditch DB Cross Sections

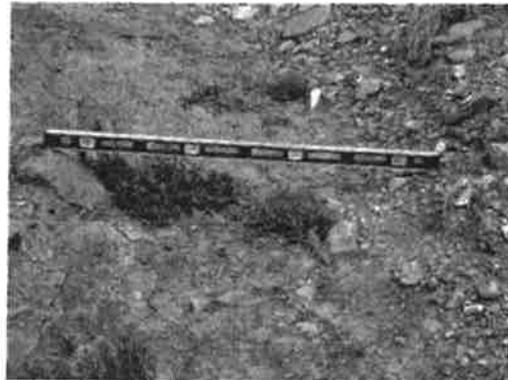


Photo 5: Ditch DB Cross Section E

3. The NOV states, "ASCA, southern end of Subsoil Stock Pile... there is no clear runoff flow path on southern end... that directs water to the silt fence." During our site visit we found that there is a clearly defined flow path. Similar to ditch DB, the flow path is reduced in size because the size of its watershed source is very small. See Photos 6 and 7. A cloth tape was laid in the center of the flow path to more easily distinguish the path in the photos.



Photo 6: Upper Flow Path



Photo 7: Lower Flow Path

Flow Capacities

The flow capacities for ditches DA and DB are calculated based on the existing ditch dimensions and original design methodologies. The original methodology is used so a fair comparison between the designed and existed ditch configurations can be made. Manning's equation is used to determine if the existing ditches are able to pass the design flows.

$$Q = A * V$$

where: Q = discharge or flow, ft³/s
A = cross-sectional area of flow, ft²

V = mean cross-sectional velocity, ft/s

For a given depth of flow in an open channel with steady, uniform flow, the mean velocity is computed with Manning's equation.

$$V = \frac{1.486}{n} * R^{2/3} * S^{1/2}$$

where: n = Manning's roughness coefficient
 R = hydraulic radius = A/P, ft
 P = wetted perimeter, ft
 S = channel slope, ft/ft

For a trapezoidal shaped open channel as shown in Figure 8, the area, hydraulic radius and wetted perimeter are calculated as follows. See the figure 8 below.

$$A = y * (B + y * z)$$

$$P = B + 2 * y * \sqrt{1 + z^2}$$

$$R = A/P$$

where: y = height of flow, ft
 B = width of base, ft

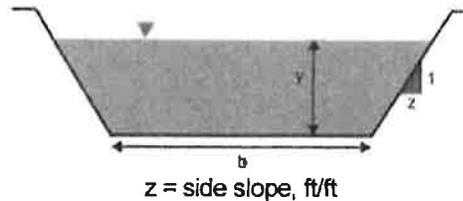


Figure 8: Ditch Section View

The original design required the mean velocity to be a maximum of 5 feet per second in order to reduce the potential for erosion. The original design used a Manning's coefficient of 0.035 and channel slopes of 2% and 12% for ditches DA and DB, listed respectively.

The remaining as-built ditch dimensions used to determine capacities are shown in Table 1. The dimensions and approximate section locations are shown on the attached drawing.

Section Location	Height of Existing Ditch	Side Slope	Channel Base	Channel Slope
	y (in)	z	B (ft)	S (ft/ft)
Section A - Ditch DA	36.0	0.14	4.83	0.02
Section B - Ditch DA	33.0	0.30	4.75	0.02
Section C - Ditch DA	32.0	0.53	3.83	0.02
Section D - Ditch DA	30.0	0.22	4.75	0.02
Section E - Ditch DB	5.0	2.00	2.33	0.12
Section F - Ditch DB	9.0	2.30	3.00	0.12

Table 1: Ditch Dimensions

The capacities of the existing ditches are calculated two ways. The first calculation is made to show the ditches can pass the design flows of 18.9 cfs and 2.52 cfs for ditches DA and DB, listed respectively, with mean velocities less than the maximum value of 5 feet per second. This is shown by calculating the height of the design flow and verifying it is less than the height of the existing ditches. See table 2.

Section Location	Design Discharge	Resulting Flow Data					Height of Existing Ditch	Free-Board
		Cross - Sectional Area	Wetted Perimeter	Hydraulic Radius	Mean Velocity	Water Height		
	Q (cfs)	A (ft ²)	P (ft)	R (ft)	V (ft/s)	y (in)	y (in)	y (in)
Section A - Ditch DA	18.90	4.22	6.55	0.64	4.5	10.2	36.0	25.8
Section B - Ditch DA	18.90	4.21	6.51	0.65	4.5	10.1	33.0	22.9
Section C - Ditch DA	18.90	4.06	5.96	0.68	4.7	11.3	32.0	20.7
Section D - Ditch DA	18.90	4.21	6.49	0.65	4.5	10.2	30.0	19.8
Section E - Ditch DB	2.52	0.56	3.24	0.17	4.5	2.4	5.0	2.6
Section F - Ditch DB	2.52	0.60	3.88	0.15	4.2	2.1	9.0	6.9

Table 2: Ditch Capacities Based on Design Flow

Table 2 shows that adequate 'free-board' remains at each of the ditch cross-sections. For example, design flow height at section A is 10.2 inches while the actual height of the ditch is 36 inches.

A second capacity calculation is presented to show that each of the ditches in their current configurations have additional capacities above what the original design requires. The discharges are determined with the maximum mean velocity of 5 feet per second. The results are presented in table 3.

Description	Maximum Mean Flow Velocity	Resulting Flow Data					Design Discharge
		Cross - Sectional Area	Wetted Perimeter	Hydraulic Radius	Water Height	Calc'd Discharge	
	V (ft/s)	A (ft ²)	P (ft)	R (ft)	y (in)	Q (cfs)	Q (cfs)
Section A - Ditch DA	5.0	5.31	6.98	0.76	12.8	26.54	18.90
Section B - Ditch DA	5.0	5.26	6.92	0.76	12.5	26.29	18.90
Section C - Ditch DA	5.0	4.78	6.28	0.76	13.0	23.88	18.90
Section D - Ditch DA	5.0	5.25	6.91	0.76	12.7	26.25	18.90
Section E - Ditch DB	5.0	0.67	3.40	0.20	2.9	3.37	2.52
Section F - Ditch DB	5.0	0.83	4.17	0.20	2.8	4.14	2.52

Table 3: Ditch Capacities Based on Maximum Velocity

Table 3 shows that the actual calculated discharge capacities at the ditch sections are greater than the design discharges. It should be noted that ditch discharge capacities would be significantly larger if the mean flow velocity were allowed to increase beyond 5.0 feet per second.

Summary

The results presented in both Tables 2 and 3 clearly show that the discharge capacities of the existing ditches exceeds the original design capacities outlined in the permit.

The upper segment of ditch DA has not been maintained to the dimensions originally specified in the permit dimensions. It has been shown that there is adequate discharge capacity within the ditch, to ensure the immediate watershed adequately drains into the sediment pond.

Ditch DB has been maintained with dimensions close enough to the original design and should be considered compliant. Discharge capacities currently exist that exceed the design capacities.

The south end of the subsoil pile adequately drains to the sediment pond through the installed silt fencing.

All ditch discharges are contained within the project site and terminate in the sediment pond. The sediment pond appears to be properly maintained with sediment excavated from the pond being stored in the waste rock disposal area.

As stated previously, we request the Division terminate this NOV based on the information provided in this letter. We are willing and available to accompany a Division employee on site to discuss the reasons why we believe the ditches in their current state will function adequately to convey and control runoff at the site. Bowie Resource Partners, LLC, through Fossil Rock Resources, LLC, will submit new designs as a permit modification to address the changes in ditch geometry.

Sincerely,



Chris D. Hansen
Director of Regulatory Compliance and Government Relations
Bowie Resource Partners, LLC