



STATE OF
COLORADO

Zuber - DNR, Rob <rob.zuber@state.co.us>

Review of Bowie #1 2019 AHR

1 message

Zuber - DNR, Rob <rob.zuber@state.co.us>

Mon, Aug 10, 2020 at 2:13 PM

To: Basil Bear <basilbear@wolverinefuels.com>, Tamme Bishop <tamme.jestover@bresnan.net>

Basil and Tamme -

Please see attached file.

Regards,
Rob

Rob Zuber, P.E.
Environmental Protection Specialist II
Active Mines Regulatory Program



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DRMS_review__2019_Annual_Hydro_Report__Bowie1.pdf
446K



August 10, 2020

Basil Bear
Bowie Resources, LLC
P.O. Box 1488
Paonia, CO 81428

**Re: Bowie No. 1 Mine, Permit C-1981-038,
Review of 2019 Annual Hydrology Report**

Dear Mr. Bear:

The Division received the 2019 AHR for the Bowie No. 1 Mine on June 6, 2020. The Division reviewed this AHR in the context of Rules 4.05.1, 4.05.6, 4.05.11, and 4.05.13 (Regulations of the Colorado Mined Land Reclamation Board for Coal Mining).

Table 1 lists important logistical requirements of the Bowie No. 1 Mine water monitoring plan, and indicates if the requirement was met with the 2019 AHR.

Table 1 Requirements of the Bowie No. 1 Mine Water Monitoring Plan

Requirement	Source of Requirement (Rule or Page in PAP)	Requirement met for 2019?
Filing frequency of AHR - annually	Rule 4.05.13(4)(c)	Yes
Timely filing of hydrology report – submitted by April 30th each year	Section 2.05.6 of the Bowie No. 1 Mine PAP, page 120	No ¹
Sites sampled and sampling frequency at <u>surface</u> water monitoring sites	Volume 4 of PAP, Tables 1 and 2	No
Parameters sampled at <u>surface</u> water monitoring sites	Section 2.05.6 of the Bowie No. 1 Mine PAP, page 119	Yes
Sites sampled and sampling frequency at <u>groundwater</u> monitoring sites	Volume 4 of PAP, Tables 3 and 4	No
Parameters sampled at <u>groundwater</u> monitoring sites	Section 2.05.6 of the Bowie No. 1 Mine PAP, page 122	Yes

1. The submittal was late, but this had been agreed upon with the Division due to the COVID-19 pandemic.

It appears that requirements were not met for frequency of sampling at the two surface water sites. Table 2 in the AHR lists the frequency of measuring laboratory data as quarterly, and this agrees with page 119 of the PAP. If that is correct, BRL is not performing these analyses as often as required at SW-05 or SW-06. Furthermore, for SW-06 (Figure 18), only three quarters of data are listed for 2019, and no laboratory data is recorded. Please explain.



Regarding wells and springs, it is not clear why there are fewer than four quarters of data for some sites (e.g., S1010 and S1404), yet the sampling plan indicates that sampling will be done quarterly. Please explain.

Key receiving waters at the Bowie No. 1 Mine are Stevens Gulch and East Roatcap Creek. An analysis of data for the downstream sampling locations for these receiving waters were a primary focus of this AHR review.

Analysis of Surface Water Data – Stevens Gulch

At the downstream sampling site, SW05, a sample was collected on 28 March 2019, and the results of laboratory analyses (along with field sampling results) are shown in Figure 16 of the 2019 AHR. For those parameters with a CDPHE standard, a comparison was made to determine potential water quality problems. Table 2 lists monitoring results and standards from Regulation 35 (Segment 6b.).

Table 2. 2019 AHR Data from SW-05 Sampling Site in Stevens Gulch, with Standard Comparison

Parameter	Units	Maximum Concentration in 2019 AHR	CDPHE Standard	Comments
pH	su	8.42	6.5 - 9.0	Standard includes low limit and high limit. No 2019 values below 6.5.
Temperature	deg C	17.5	28.6	WS-III standard for non-winter months.
Chloride	mg/L	3.1	250	
Sulfate	mg/L	13	250	Water supply standard from Regulation 31.
Iron, dissolved	mg/L	0.131	0.3	
Iron, total	mg/L	0.328	1.0	
Manganese, total	mg/L	0.077	0.2	Domestic water supply standard is 0.05 mg/L, but it is not likely that Stevens Gulch will be used for domestic water.

This table provides no reason to believe that there is a mine-related water quality issue in Stevens Gulch.

The Total Dissolved Solids (TDS) value in March 2019, 132 mg/L, is much less than a guideline of 750 mg/L (Banta, 1988). This parameter is not considered problematic at this time.

Analysis of Surface Water Data – East Roatcap Creek

At the downstream sampling site, SW06, only field data was collected, and maximum values are shown in the following table along with standards from Regulation 35 (Segment 5b.). Also, the minimum value is shown for pH. (As noted above, it is unclear why no lab data is listed in the AHR for 2019.)

Table 3. 2019 AHR Data from SW06 Sampling Site in East Roatcap Creek

Parameter	Units	Maximum Concentration from 2019	Minimum Concentration from 2019	CDPHE Standard	Comments
pH	su	8.4	8.16	6.5 - 9.0	
Temperature	deg C	16.4	NA	17.0	CS-II standard for non-winter months.

Also, conductivity is relatively low, with a maximum of 310 umhos/cm. The Division finds that these field data are not problematic.

Analysis of Springs Data

The 2019 AHR contains data for several springs. Temperature and pH values do not exceed standards at any of these springs. For most springs, there is no laboratory data for water quality parameters due to dry or nearly dry conditions. For two of the springs, 14-4 and 30, there is laboratory data, and both are in the Roatcap watershed. The data for these was compared to standards in Regulation 35, Segment 5b. No issues were identified at either spring

Analysis of Groundwater Data

The 2019 AHR includes groundwater data for three alluvial wells: MW01, MW02, and MW03. MW03 is the primary down-gradient well monitored at the site, and the Division review of the 2018 AHR (last year) focused on the data for that well. However, in 2019 there is only laboratory data for MW01, so the 2019 review is focused on that site. A comparison to Regulation #41 of the CDPHE Water Quality Standards revealed no exceedances. The TDS value of 622 mg/L is typical for the well, and not considered problematic.

References

- Banta, 1988, "A Description of the Material Damage Assessment Process Pertaining to Alluvial Valley Floors, Surface Water, Ground Water and Subsidence at Coal Mines."
- CDPHE, Regulation No. 35 - Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins.
- CDPHE, Regulation No. 41 - The Basic Standards for Groundwater.

Thank you,

A handwritten signature in blue ink, appearing to read "Robert D. Zuber".

Robert D. Zuber, P.E.
Environmental Protection Specialist II

Cc via email: Tamme Bishop, J.E. Stover & Associates, Inc.