STATE OF COLORADO

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Bowie #1 AHR review

1 message

Zuber - DNR, Rob <rob.zuber@state.co.us> Tue, Dec 14, 2021 at 10:25 AM
To: Tamme Bishop <tamme.jestover@bresnan.net>, Basil Bear <basilbear@wolverinefuels.com>

Basil and Tamme -

Please see the attached review letter and let me know if you have questions or comments.

Rob

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Division of Reclamation, Mining and Safety
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DRMS_review__2020_Annual_Hydro_Report__Bowie1.pdf
565K

COLORADO
Division of Reclamation, Mining and Safety
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December 14, 2021

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

Re: Bowie No. 1 Mine, Permit C-1981-038,
Review of 2020 Annual Hydrology Report

Dear Mr. Bear:

The Division received the 2020 AHR for the Bowie No. 1 Mine on June 7, 2021. 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 2020 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 2020?
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 surface water monitoring sites	Volume 4 of PAP, Tables 1 and 2	**No**
Parameters sampled at surface water monitoring sites	Section 2.05.6 of the Bowie No. 1 Mine PAP, page 119	Yes
Sites sampled and sampling frequency at groundwater monitoring sites	Volume 4 of PAP, Tables 3 and 4	Yes
Parameters sampled at groundwater 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.

It is not clear that requirements were met for frequency of sampling at the two surface water sites. Table 1 in the AHR lists the frequency of measuring laboratory data as quarterly. **Please explain why field data was collected for SW-05 on March 5, 2020, but no laboratory analysis was performed for this site. Also, please explain why field data was collected for SW-06 on December 3, 2020, but no laboratory analysis was performed.**

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 for Stevens Gulch, SW05, no laboratory data is presented in the AHR, so the Division analysis is limited.

Field data was collected on March 5, 2020, and the results shown in Figure 16 of the 2020 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. 2020 AHR Data from SW-05 Sampling Site in Stevens Gulch, with Standard Comparison

Parameter	Units	Concentration in 2020 AHR	CDPHE Standard	Comments
pH	su	8.26	6.5 - 9.0	
Temperature	deg C	22.0	28.6	

This table provides no reason to believe that there is a mine-related water quality issue in Stevens Gulch. However, as noted above, it is unclear why no lab data is listed in the AHR for 2020.

The conductivity value in March 2020, 613 umhos/cm, is not considered problematic.

Analysis of Surface Water Data – East Roatcap Creek

At the downstream sampling site for East Roatcap Creek, SW06, a sample was collected on June 10, 2020, and the results of laboratory analyses and field sampling results are shown in Figure 18 of the 2020 AHR. For those parameters with a CDPHE standard, a comparison was made to determine potential water quality problems. Table 3 lists monitoring results and standards from Regulation 35 (Segment 5b.).

Table 3. 2020 AHR Data from SW06 Sampling Site in East Roatcap Creek

Parameter	Units	Concentrations from 2020	CDPHE Standard	Comments
pH	su	8, 8.07	6.5 - 9.0	
Temperature	deg C	0.2 in Dec., 9.4 in June	9.0 Nov-Mar, 18.3 Apr–Oct	
Chloride	mg/L	3.0	250	
Sulfate	mg/L	15.6	250	
Iron, dissolved	mg/L	<MDL	0.3	
Iron, TREC	mg/L	<MDL	1.0	

TDS is relatively low, with a concentration of 228 mg/L.

The Division finds no reason to believe that there is a mine-related water quality issue in East Roatcap Creek, based on the 2020 data.

Analysis of Springs Data

Four springs were dry and no data is reported in the 2020 AHR: 10-10, 25, 13-5, and 13-6. Data is reported for two springs: 14-4 and 30. Per the map of sampling locations (Hydrologic Reconnaissance), it appears that both springs are in the East Roatcap drainage. It also appears that Table 1 (and the data table for Spring 14-4) has an error: it states that this site is in the West Roatcap drainage. **This error should be corrected in future AHRs.**

No water quality issues are identified in the data for Spring 14-4 and Spring 30. Although the total iron value at Spring 14-4 is quite high (2.71 mg/L), there is no problem with iron in the creek at monitoring site SW06 (see Table 3 of this report), and this concentration is the spring water is not considered problematic.

Analysis of Groundwater Data

The 2020 AHR includes groundwater data for three wells (all alluvial): MW01, MW02, and MW03. MW03 is down-gradient of the Coal Storage and Loadout areas, and the Division's review of the 2020 AHR is focused on the data for that well. A comparison to Regulation #41 of the CDPHE Water Quality Standards is presented in Table 4. Several measured parameters for MW03 do not have CDPHE standards.

Table 4. 2020 AHR Data from MW03

Parameter	Units	Maximum Concentration from 2020	CDPHE Standard	Comments
Chloride	mg/L	6.2	250	
Sulfate	mg/L	16.5	250	
Iron, dissolved	mg/L	0.06	0.3	

The pH values in the data are all above 7.0 and below 8.0, within the acceptable range of 6.5 – 8.5.

The TDS values are below 500 mg/L and typical for this well; they are not considered problematic.

No water quality issues are identified in the data for MW03.

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. 31 – The Basic Standards and Methodologies for Surface Water.
- 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,

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

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