



STATE OF
COLORADO

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Bowie #1 2022 AHR - DRMS review

1 message

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Fri, Jun 30, 2023 at 3:34 PM

To: Basil Bear <basilbear@wolverinefuels.com>, Tamme Bishop <tammekb@gmail.com>

Hello -

Please see the attached letter with my review of the Bowie #1 AHR for 2022.

Thanks.

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



COLORADO
Division of Reclamation,
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Department of Natural Resources

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DRMS_review__2022_Annual_Hydro_Report__Bowie1.pdf

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June 30, 2023

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

**Re: Bowie No. 1 Mine, Permit C-1981-038,
Review of 2022 Annual Hydrology Report**

Dear Mr. Bear:

The Division received the 2022 AHR for the Bowie No. 1 Mine on June 9, 2023. 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 2022 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 2022?
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	Yes
Parameters sampled at <u>surface</u> water monitoring sites	Section 2.05.6 of the Bowie No. 1 Mine PAP, page 119	No
Sites sampled and sampling frequency at <u>groundwater</u> monitoring sites	Vol. 4 of PAP, Tables 3 and 4; Vol. 7, page 2.05-41 (loadout)	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.



It is unclear why values for some parameters are missing from the data for SW06 (the sampling site for East Roatcap Creek). In particular, explain why data is missing for acidity, calcium, and magnesium.

It is unclear why water levels in MW-1, MW-2, and MW-3 only measured three times instead of four times (quarterly). This should be clearly explained in the response letter. In future AHRs, the reasons for missing a sampling event (such as access issues) should be described in the report text and on applicable data tables.

The table in the AHR that is entitled “Summary of Hydrology Monitoring Stations” is missing some of the monitoring stations, including the surface water stations for Stevens Gulch and East Roatcap Creek. This should be included in future AHRs.

Analysis of Surface Water Data

Key receiving waters at the Bowie No. 1 Mine are Stevens Gulch and East Roatcap Creek. Analyses of data for the downstream sampling locations for these receiving waters are a primary focus of Division AHR reviews.

Stevens Gulch was dry during all sampling efforts, as reflected in the data for sampling location SW-05.

The data for the site for East Roatcap Creek, SW-06 in Figure 18 of the AHR, contains data for June 13, 2022. During other sampling events (September and November), the site was dry. The flow in June at SW-06 was relatively low, 2.5 cfs, and none of the water quality data appears problematic.

Analysis of Springs Data

All six springs that are currently in the monitoring plan were dry during all monitoring efforts, and no data is reported in the 2022 AHR.

Analysis of Groundwater Data

The 2022 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 2022 AHR focused on the data for that well. A comparison to Regulation #41 of the CDPHE Water Quality Standards is presented in Table 2. Several measured parameters for MW03 do not have CDPHE standards.

Table 2. 2022 AHR Data from MW03

Parameter	Units	Maximum Concentration from 2022	CDPHE Standard	Comments
Chloride	mg/L	3.76	250	
Sulfate	mg/L	32.4	250	
Iron, dissolved	mg/L	0.377	0.3	

The pH values in the data are all within the acceptable range of 6.5 – 8.5.

The TDS values are below 750 mg/L and typical for this well. They are not considered problematic.

There was one exceedance for dissolved iron. It was only slightly above the standard, and the data for the two other sampling times indicated concentrations below the detection level. This exceedance is not considered a significant problem, but this parameter will be closely watched in future AHRs.

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

Regarding water levels in MW03, the data indicate essentially no variation from the operational norm. The operational average for this well is 5704, and the levels measured in 2022 vary from 5698 to 5706.

References

- 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.