



October 11, 2024

Ben Moline, PE
Senior Manager, Water Resources & Environmental Compliance
Coors Energy Company
P.O. Box 4030
Golden, CO 80402

**Re: Keenesburg Strip Mine, Permit C-1981-028
Adequacy Review of 2023 Annual Hydrology Report (AHR)**

Dear Mr. Moline:

The Division of Reclamation, Mining and Safety (Division) received the 2023 AHR for the Keenesburg Strip Mine on February 29, 2024 (combined with the 2023 Annual Reclamation Report). 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 Keenesburg Strip Mine water monitoring plan.

Table 1. Requirements of the Keenesburg Strip Mine Water Monitoring Plan

Requirement	Source of Requirement (Rule or Page in PAP)	Requirement met for 2023?
Filing frequency of AHR - annually	Rule 4.05.13(4)(c)	Yes
Timely filing of AHR – submitted by end of February each year	Page 117 of PAP	Yes
<u>Surface water</u> monitoring	Not required	NA
<u>Groundwater</u> monitoring - sites sampled and sampling frequency	Page 56 of PAP	Yes
<u>Groundwater</u> monitoring - parameters sampled	Page 57 of PAP	Yes

1. PAP = Permit Application Package

Two downgradient wells were assessed for mining impacts:

- PC-6, which is northeast and downgradient of the B Pit area
- DH-96, which is approximately 0.7 mile north of the facilities area.

For an assessment of Total Dissolved Solids (TDS), a comparison was made between these downgradient wells and two upgradient wells, PC-1 and PC-2. This comparison is shown in Table 2.



Table 2. Comparison of Total Dissolved Solids, Downgradient and Upgradient

Sample Location	TDS Concentration April 2023 (mg/L)	TDS Concentration September 2023 (mg/L)
PC-6 (downgradient)	2,440	2,240
DH-96 (downgradient)	1,300	1,290
PC-1 (upgradient)	3,150	3,220
PC-2 (upgradient)	10,700	7,600

Concentrations at upgradient wells PC-1 and PC-2 were significantly higher than downgradient concentrations at wells PC-6 and DH-96 in 2023. Regarding TDS, the 2023 data did not reveal that the Keenesburg Strip Mine is causing negative impacts on groundwater quality.

To detect other possible issues with mining impacts on groundwater quality (for parameters other than TDS), data in the 2023 AHR for the Keenesburg Strip Mine were compared to water quality standards. The groundwater regulations used for this AHR review are Regulation 41 (Colorado Department of Public Health and Environment (CDPHE), revised June 2020). These regulations include domestic supply and agricultural standards. The following table lists parameters and concentrations from the two downgradient wells that are exceedances of Regulation 41 standards.

Table 3. Exceedances in 2023 Data at Downgradient Wells (concentrations in mg/L)

		Manganese, dissolved	Selenium, dissolved	Fluoride	Sulfate
<i>Regulation 41 Standard:</i>		<i>0.05</i>	<i>0.020</i>	<i>2.0</i>	<i>250</i>
Sample Location	Month of Sampling				
PC-6	April		0.0692	2.14	1,080
PC-6	September		0.0598	3.59	1,370
DH-96	April	0.519		2.50	773
DH-96	September	0.521		2.25	681

The data from the two down gradient wells were compared to data from two upgradient wells: PC-1 and PC-2. Table 4 lists the data for these upgradient wells.

Table 4. 2023 Data for Upgradient Wells (concentrations in mg/L)

Sample Location	Month of Sampling	Manganese, dissolved	Selenium, dissolved	Fluoride	Sulfate
PC-1	April	ND	0.0870	1.56	1,880
PC-1	September	ND	0.0770	1.89	2,080
PC-2	April	1.61	ND	ND	4,880
PC-2	September	2.13	ND	ND	5,800

Because upgradient values are greater than downgradient values for three parameters (manganese, selenium, and sulfate), mining impacts from the Keenesburg Strip Mine do not appear to be causing an issue with these parameters in groundwater at or near the site.

For fluoride, further analysis was performed. Appendix J in the PAP for the Keenesburg Strip Mine includes historical data collected prior to the opening of the mine. This data collected from 1978 to 1984 includes fluoride concentrations for the DH-96 well that range from 1.45 mg/L to 3.4 mg/L, which is comparable to the concentrations measured in 2023 for this well. This data suggests that fluoride concentrations have not increased in this well due to mining activity.

If you have any questions, please do not hesitate to contact me at Rob.Zuber@state.co.us or 720.601.2276.

Regards,



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