STATE OF COLORADO

Reilley - DNR, Robin <robin.reilley@state.co.us>

Review 2022 AHR Trapper Mine

1 message

Reilley - DNR, Robin <robin.reilley@state.co.us> Fri, Mar 22, 2024 at 1:08 PM
To: Graham Roberts <graham.roberts@trappermine.com>, Robin Reilley - DNR <robin.reilley@state.co.us>

Good Afternoon Mr. RobertsGraham

Attached please find the Division's review of the 2022 Annual Hydrology Report for Trapper Mine. No adequacy issues were noted.

Please let me know of any concerns or questions that come up.

Best Regards

Robin Reilley, M.S. GISP
Environmental Protection Specialist II

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

P 303.866.3567 ext 8105 |
F 303.832.8106
Physical Address: 1313 Sherman Street St., Suite 215, Denver, CO 80203
Mailing Address: DRMS Room 215, 1001 E 62nd Ave, Denver, CO 80216
robin.reilley@state.co.us | http://mining.state.co.us

Review_AHR_2022_Trapper.pdf
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Review of Annual Hydrology Report

Mine: Trapper Mine Inc,
Permit No: C1981010
Report Year: 2022
Date Received: 29 March 2023

Date Reviewed: 22 March 2024
Reviewed By: R. Reilley
Submitted By: Trapper Mine Inc.

January 2022 through December 2022

Requirement	Requirement Citation	Comment
1. Filing frequency of hydrology report	CDRMS regulation 4.05.13(4)(c)	The Annual Hydrology Report filling. .
2. Timely filing of hydrology report	CDRMS regulation 4.05.13(4)(c) and Permit C81010 Sections 4.8.5.1 and 4.8.5.2	The Annual hydrology Report is required to be submitted by 15 March and was received by the Division on 29 March 2022 via electronic submittal.
3. Filing frequency of NPDES Discharge Monitoring Reports	NPDES permit CO-0032115	Filling is monthly and quarterly, and reports were consistently relayed to DRMS in a timely manner.
4. Filing frequency of pond reports	CDRMS regulation 4.05.9(17)	Filing frequency was met.
5. Timely filing of pond reports	CDRMS regulation 4.05.9(17)	and monthly pond inspection reports were consistently submitted and received by the Division in a timely manner.
6. Content of pond reports	CDRMS regulation 4.05.9(15)	Filing of reports was timely and content appeared adequate.
7. Sampling frequency of NPDES outfalls	NPDES permit CO-0032115	It appears that frequency for sampling was complied with. Sampling sites are listed in Trapper Mine Permit Table 4.8-8b.
8. Parameters to be sampled for NPDES reporting	NPDES permit CO-0032115	Field parameters sampled comprise temperature (°C), flow (gpm), pH (std units), conductivity (µmhos), and constituent parameters comprise TSS (mg/l), TDS (mg/l), Fe (mg/l), total Fe (mg/l), total Al (mg/l). Extended sampling parameters are monitored as per list A-3 of Table 4.8-12 of discharge permit. Sampling procedures are discussed in Appendix Q and permit section 4.8.5.
9. NPDES discharge limitations	NPDES permit CO-0032115	Trapper monitors 16 drainage systems. The Trapper Mine discharged from the Johnson (001), No Name (002), East Pyeatt (011), and Middle Flume (020), systems discharged in 2022. No limits were exceeded.

Requirement	Requirement Citation	Comment
10. Basic Standards for Surface Water	CWQCC regulations 31.1.11	See section 11 below: Instream Numeric Standards. One native spring (East Pyeatt) discharged above the 5gpm flow rate where sampling would be indicated during water year 2022. Increasing TDS concentrations were noted in Pyeatt and Coyote springs.
11. Instream Numeric Standards	CWQCC Regulations 31 and 37	Trapper's discharges from several NPDES outfalls drain to Segment 3b of the Lowe r Yampa River. Trapper's NPDES discharge limitations are based on constituents in Trapper's effluent likely to cause an exceedance of Segment 3b's numeric standards. Discharges in 2022 appeared to comply with discharge limitations set as per the NPDES permit. It is reasonable to conclude that Trapper's discharges did not violate Segment 3b's instream numeric standards.
12. Antidegradation Rule for Surface Water	CWCC regulations 3.1.9(2) and 3.3.0.	Trapper is not subject to the Antidegradation Rule because the receiving waters (Segment 3b of Lower Yampa River) are designated as use protected.
13. Prevention of impacts to surface water adversely impacting the postmining land use	CDRMS regulation 4.05.1(2), CDRMS regulation 4.05.13(2)	Upon completion of mining, Trapper's Pond network will be used for watering livestock and wildlife. To evaluate the suitability of Trapper's surface water for those uses, a comparison of surface water data as per the AHR to water quality standards of CWQCC Regulations 31 and 37 for stream segment 3b is made. Regulation 37s classifications for stream segment 3b include Aquatic Life (warm 2), Recreation (P), and Agriculture. The State of Colorado defines the agricultural use classification as water suitable for irrigation and stock watering, assuming that water safe for livestock and aquatic life is also safe for wildlife. Also, certain constituents monitored have effluent limitation standards requirements as per Trapper's NPDES permit. Water quality was measured at downstream discharge points in drainages at northern permit boundary. Water quality at these locations is assumed to be representative of water quality higher in the watersheds. No exceedances of standards occurred in 2022. The current surface water monitoring program continues to adequately protect the hydrologic balance.

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13. Prevention of impacts to surface water adversely impacting the postmining land use	CDRMS regulation 4.05.1(2), CDRMS regulation 4.05.13(2)	Upon completion of mining, Trapper's Pond network will be used for watering livestock and wildlife. To evaluate the suitability of Trapper's surface water for those uses, a comparison of surface water data as per the AHR to water quality standards of CWQCC Regulations 31 and 37 for stream segment 3b is made. Regulation 37s classifications for stream segment 3b include Aquatic Life (warm 2), Recreation (P), and Agriculture. The State of Colorado defines the agricultural use classification as water suitable for irrigation and stock watering, assuming that water safe for livestock and aquatic life is also safe for wildlife. Also, certain constituents monitored have effluent limitation standards requirements as per Trapper's NPDES permit. Water quality was measured at downstream discharge points in drainages at northern permit boundary. Water quality at these locations is assumed to be representative of water quality higher in the watersheds. No exceedances of standards occurred in 2022. The current surface water monitoring program continues to adequately address the protection of the hydrologic balance.
14. Sampling frequency of ground water monitoring wells	Table 4.8-13a of CDRMS mining permit C-81-010	Notes of monitoring frequency: o Well P-5 was dry during the 2nd and 3rd quarters. GP-7 appears to have rebounded for Dec 2022 measurements, GLEV-2 and P-5 held water. It should be noted that between January 2005 and June 2010 for P-5 only one water level was recorded. Monitoring of 81-031A was re-initiated beginning the last two quarters of 2020. Monitoring at this location was stopped after June 2006. (It should be noted that water level data was collected for this well and presented in Table A-1 but no graph of historic and present data was given.) Data from this well was used in generating the Potentiometric Surface Map 2-3.
15. Interim Narrative Standard for Ground Water	CWQCC regulation 41	Reviewed

16. Parameters to be analyzed in ground water samples	Appendix Q, Table 4.8-13 and Table 4.8-13a of CDRMS mining permit C81010	Parameters sampled comprise conductivity (umhos/cm), pH (units), temperature (C), dissolved fluoride (mg/I), dissolved iron (mg/I), dissolved manganese (mg/I), dissolved nitrate (mg/I), dissolved nitrite (mg/l), dissolved selenium (ug/l), dissolved sulfate (mg/l) and total dissolved solids (mg/l). At measured sites all parameters were sampled for.
17. Basic Standards for Ground Water	CWQCC regulations 41.4 and 41.5	Six alluvial wells monitor Flume, Coyote, Deacon, Pyeatt and Johnson alluviums (COY, GC3, CYA, GLEV2, P1 and J1 respectively). Well GP-9, Trapper's groundwater point of compliance monitors the Third White Sandstone immediately downgradient from Trapper's L and F pits at a location where a leachate plume can be expected to form, as explained in the PHC (Section 4.8.3 of the permit and page 4-242). The 2022 data from well GP-5, downgradient of the N Pit in the Middle Pyeatt drainage exhibited high levels of sulfate beginning in 2021, 2000 mg/l up from 300 mg/l in 2020. TDS took a dramatic jump in 2021 and has remained elevated in GP-5. TDS and Sulfate levels in Well GMP-1 just upstream from GP-5 have been rising since 2005. At GLEV-3, located north of the L Pit TDS and sulfate levels track with GMP-1 levels for the past 8 years. Active mining is occurring in both N and L pit. Sulfate levels and TDS in P-8 increased dramatically in 1995 and have remained elevated since. This well is also located in the Pyeatt drainage downgradient of N Pit. Active mining is occurring in both N and L pits. The 2022 data from well GP-9 does not reflect any new exceedances of the Basic Standards for Ground Water for a domestic use classification based on the parameters analyzed, and the results are consistent with historical results. (This classification is for the Third White Sandstone in a Specified Area that extends outward from Trapper's northern permit boundary on the east half of the mine to the axis of the Big Bottom Syncline, a distance ranging between 1/2 and 3/4 mile from the boundary.) There continues to be an exceedance of the drinking water standard for Mn; however, Mn exceedances also occurred in well GP-9 prior to mining in the area upgradient of this well. Other groundwater quality factors (e.g., concentrations of TDS and sulfate)

		continue to remain within historical sampling ranges and indicate that coal spoil leachate probably has not reached GP-9. Flume Gulch alluvium could also be contaminated by coal spoil leachate. The Coy well is the groundwater point of compliance for the Flume Gulch alluvium, as explained on page 4-242 of the permit application. Sampling data from 2022 indicates no exceedances of the Basic Standards for Ground Water for the classification of agricultural use at the Coy well. GF-6 continues to trend upward in concentrations of TDS. The Mn concentration historically hovers near 0.055 at GF-6 and at 0.77mg/L for GF-7 exceeding the Basic Standards for Ground Water of 0.05 mg/L. J-1 well, Boron steadily trends up, and the 2022 value for total Manganese (0.143 mg/L) concentrations was the highest on record. There is no standard for total Manganese and in Table 3 of the Basic Standards for Ground Water the standard for Boron is 0.75 mg/L. However, the Boron standard is protective of cultivated plants. If crop watering of specific plants is not reasonably expected the standard for Boron is 5 mg/L.

Requirement	Requirement Citation	Comment
18. Restoration of ground water recharge to approximate pre-mining rate	CDRMS regulation 4.05.12(3)	It appears that water levels in the QR aquifer may be gradually declining. Additional monitoring will help determine the significance of the decline. Water levels in backfill aquifers associated with wells GF-6 and GF-11 appear to be above baseline levels due to increased permeability. Levels in the HI aquifer appear consistent with historic levels. Water levels in most backfill areas are depressed and not likely to recover to pre mine levels except near the north end of the mine area. All alluvial wells displayed seasonal water level fluctuations in response to periods of precipitation recharge. All wells were monitored in 2022. Springs discharging more than 5gpm were monitored. Spoil springs may reduce groundwater recharge by diverting groundwater flow to surface flow.
19. Prevention of adverse impacts to ground water systems outside permit area	CDRMS regulation 4.05.11(1)	Compliance with the Basic Standards for ground water item 17), indicates the permittee is monitoring to detect adverse impacts to ground water quality outside the permit area. Monitoring data indicate the permittee is aware of possible impacts to water quantity outside the permit area. Continued monitoring is part of the permit. Hydrology reports indicate that water level at all wells are within historic ranges. All alluvial wells showed seasonal water level fluctuations in response to periods of precipitation or, lack thereof. Overburden and coal well water levels are fluctuating in response to precipitation recharge and ground water flow from the reclaimed mine pits.
20. Prevention of impacts to ground water that adversely impact post-mining land use	CDRMS regulation 4.05.11(2)	As discussed in item 19 above, TMI is monitoring for the possibility of material damage.

Requirement	Requirement Citation	Comment
21. Minimize disturbance to hydrologic balance within and adjacent to the permit area	CDRMS regulation 4.05.1(1)	The disturbance to the hydrologic balance within and adjacent to the permit area caused by mining and reclamation at the Trapper Mine Inc, constitute the minimum that can be expected from a reclaimed surface mine at this location. The operators' use of a robust monitoring program and best management practices indicates efforts to minimize disturbance to the hydrologic balance.
22. Agreement of observed hydrologic impacts with PHC projected in the permit	CDRMS reg. 2.05.6(3) and requirement to keep current, CDRMS regulation 2.03.3(1)	No local or regional impacts were identified in the AHR. This observation is consistent with the PHC.