



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

December 29, 2017

Miranda Kawcak
Peabody Energy, LLC
29515 Routt County Road #27
Oak Creek, CO 80467

**RE: Yoast Mine (Permit No. C-1994-082)
2016 Annual Hydrology Review**

Dear Ms. Kawcak,

The Division has completed its review of the above referenced report received on 30 March 2017 via email.

Annual Hydrology Report

The Division finds the 2016 Annual Hydrology Report in compliance of the requirements identified in the attached memo. The report fulfills the 2016 requirement to file an annual hydrology report. It is noted that through the Division's approval of Technical Revision No. 103, a number of monitoring stations have been either permanently or temporarily suspended. The Division has the following comments:



Review of Annual Hydrology Report

Mine: Yoast Mine

Permit No: C-1994-082

Report Year: 2016

Date Received: March 30, 2017

Date Reviewed: 12/19/2017

Reviewed By: Jason Musick

Submitted By: Seneca Property, LLC

Requirement	Requirement citation	Comment
1. Filing frequency of hydrology report	CDRMS regulation 4.05.13(4)(c)	The Annual hydrology Report is required to be submitted yearly
2. Timely filing of hydrology report	CDRMS regulation 4.05.13(4)(c)	The Annual hydrology Report is required to be submitted by February 28 and was received by the Division on March 30, 2017 via email. Seneca Property LLC requested and was granted extensions to March 30.
3. Filing frequency of NPDES Discharge Monitoring Reports	NPDES permit COG-0000221	All filing dates were met.
4. Timely filing of Discharge Monitoring Reports	NPDES permit COG-0000221	All DMR were received on time.
5. Sampling frequency of NPDES outfalls	NPDES permit COG-0000221	Frequency for sampling was complied with.
6. Parameters to be sampled for NPDES reporting	NPDES permit COG-0000221	All parameters were met.
7. NPDES discharge limitations	NPDES permit COG-0000221	<p>The Yoast Mine discharged from Ponds 010, 011, 012, 013, and 014 during 2016. According to the report no exceedances were noted during the 2016 water year</p> <p>Based on a Memorandum of Understanding between the Division of Reclamation, Mining and Safety and the Water Quality Control Division (WQCD), the</p>

		WQCD will be responsible for enforcing CDPS permit conditions.
8. Basic Standards for Surface Water	CWQCC regulations 31.1.11	The manganese standard was exceeded four times at four Sites. Based on CWQCC reg. 31, the standard of 0.2 mg/l, applies to plants grown in acidic soils (<6.0 pH). In alkaline soils, as found throughout the Youast and Seneca II W region, the EPA standard would be 10 mg/l. The maximum manganese value observed at any surface site was 1.58 mg/l.
9. Instream Numeric Standards	CWQCC regulation 33.0	<p>Ten monitoring sites exist within the Sage and Grassy Creek Basins: YSSF3, NPDES 12, NPDES 13, NPDES 14, and YSS2 are on Sage Creek. NPDES 10, NPDES 11, YSGF5, and YSG5 are on Grassy Creek. In addition, Spoil Springs YSSPG3, YSSPG4, and YSSPG5 are found within the Sage Creek Basin and Spoil Springs YSSPG1 and YSSPG2 are found within the Grassy Creek/Annand Draw Basin. The receiving stream standards for both Sage Creek and Grassy Creek is on Segment 13e of the Yampa River basin. The stream standards for Sage Creek and Grassy Creek are based on aquatic life standards. Table 13 of the 2016 AHR provides a comparison of the standards to water quality collected from NPDES points and stream sites in the Sage and Grassy Creek Basins. The total recoverable iron standard (1.0 mg/l) was exceeded two times at two sites.</p> <p>A high level mercury test with a method detection limit of 0.2 ug/l for streams and a low level mercury test with a method detection limit of 0.0002 ug/l for NPDES sites was run. All high level test values were less than the detection limit. With the exception of exceedances at YSG5, YSGF5, and YSS2 (0.2 method detection range)</p> <p>NPDES Outfall 010 exceeded the potential dissolved chronic standard February 3rd. The selenium lab test were in three forms in 2013 in order to conduct an</p>

		<p>investigation on the difference in three methods, dissolved, potentially dissolved, and total recoverable.</p> <p>The exceedances of the selenium stream standard were not NPDES permit limit exceedances. The permit limit for outfall 010 for selenium is to "Report" only.</p>
10. Interim Narrative Standard for Ground Water	CWQCC regulation 41	<p>The selenium standard was exceeded one time at SGAL70 Based on CWQCC reg. 41, the standard of 20.0 ug/l. The May concentration was measured at 43.70 ug/l. The September concentration decreased to 0.30 ug/l.</p> <p>It was determined that bed rock groundwater points of compliance are unwarranted at the Yoast Mine. Well SGAL70 serves as the Yoast Mine's Grassy Creek Alluvial ground water point of compliance and well YSAL3 serves as the alluvial ground water point of compliance for Sage Creek. Ambient values for this site were below the Reg. 41 standards during the 2016 water year.</p>
11. Sampling frequency at surface water	Tab 15, Table 15-9 of CDRMS mining permit C-1994-082	The report indicates that all frequencies were met.
12. Parameters to be sampled at surface water sites	Tab 15, Table 15-4 and 15-5 of CDRMS mining permit C-1994-082	Parameters to be sampled are conductivity (umhos/cm), pH (units), temperature (C), total recoverable iron (mg/l), dissolved manganese (mg/l), total mercury (ug/l), dissolved nitrate (mg/l), dissolved nitrite (mg/l), total ammonia (mg/l), dissolved selenium (ug/l), dissolved sulfate (mg/l), total sulfide (mg/l), total suspended solids (mg/l) and total dissolved solids (mg/l). All required parameters were analyzed. All parameters were met.
13. Filing frequency of pond reports	CDRMS regulation 4.05.9(17)	The sediment ponds associated with C-1994-082 include 010, 011, 011A, 012, 012A, 013, and 014. Quarterly pond inspections were conducted within the appropriate quarter.

14. Timely filing of pond reports	CDRMS regulation 4.05.9(17)	Quarterly pond inspection reports were submitted and received by the Division within an appropriate timeframe.
15. Content of pond reports	CDRMS regulation 4.05.9(15)	All required information was addressed on quarterly sediment pond inspection in water year 2016.
16. Sampling frequency of ground water monitoring wells	Tab 15, Table 15-8 of CDRMS mining permit C-1994-082	Ground water samples are collected from YSAL1, YSAL3, YAAL14, YGAL16, YOV30, YW30 YWU30, YWC33, YWCU33, YTM32, and SGAL70 and SFAL72 on an annual basis.
17. Parameters to be analyzed in ground water samples	Tab 15, Table 15-4 of CDRMS mining permit C-1994-082	Parameters to be sampled are conductivity (umhos/cm), pH (units), temperature (C), dissolved iron (mg/l), dissolved manganese (mg/l), dissolved fluoride (mg/l), dissolved nitrate (mg/l), dissolved nitrite (mg/l), dissolved selenium (ug/l), dissolved sulfate (mg/l), total suspended solids (mg/l), and total dissolved solids (mg/l). All parameters were met.
18. Basic Standards for Ground Water	CWQCC regulations 41.4 and 41.5	The Yoast Mine did not generate significant amount of leachates in 2016. One groundwater well exceeded the selenium standard (20.0 ug/l) in 2016.
19. Restoration of ground water recharge to approximate pre-mining rate	CDRMS regulation 4.05.12(3)	For the 2016 water year, water levels at all wells fell within their historic ranges, with the exception of well YW30. YW30 displayed its highest level ever during the 2016 water year with a value of 151.19 feet. All alluvial wells displayed seasonal water level fluctuations in response to periods of precipitation recharge.
20. 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, as in item 10, indicates the permittee is preventing adverse impacts to ground water quality outside the permit area. Monitoring data indicate the permittee is preventing impacts to water quantity outside the permit area. Hydrology reports indicate that a water level at all wells fell within their historic ranges with the exceptions noted in Item 19

		above. 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 the precipitation recharge and ground water flow from the reclaimed mine pits.
21. Prevention of impacts to ground water that adversely impact post-mining land use	CDRMS regulation 4.05.11(2)	No material damage has occurred, as discussed in item 20, above.
22. 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 Yoast Mine is the minimum that can be expected from a reclaimed surface mine at this location. Use of best management practices indicates minimization of disturbance to the hydrologic balance.
23. Prevention of material damage to the hydrologic balance outside the permit area	CDRMS regulation 4.05.1(1)	<p>Surface water –A prediction was made as to the increase in TDS would be observed at various stream sites during the irrigation season (June-September). Average TDS at all four sites was lower than predicted for the 2016 water year.</p> <p>Ground water – In TAB 17 of the PAP, predictions were made as to the expected TDS increases to be observed at various monitoring wells. Predicted TDS values were exceeded at 4 of the 7 sites with the peak values occurring in 2011. Although the 4 sites exceeded the TDS prediction, the alluvial wells did not exceed the TDS Point of Compliance standard for Sage Creek alluvium or Grassy Creek Alluvium. No material damage has occurred, as discussed in item 20, above.</p>
24. Agreement of observed hydrologic impacts with "probable hydrologic consequences" projected in mining	CDRMS regulation 2.05.6(3) and requirement to keep current, CDRMS regulation 2.03.3(1)	<p>No local or regional impacts were identified in the AHR. This observation is consistent with the PHC.</p> <p>It is noted that the exceedences of the CDPHE selenium standard may need to be included in a</p>

		revised PHC section of the permit. A determination should be made based on the NPDES Compliance Schedule to meet the selenium limit by December 31, 2015 associated with the NPDES permit.
25. Adequacy of ground water monitoring program	CDRMS regulation 4.05.13(1)	The current ground water monitoring program continues to adequately address the protection of the hydrologic balance.
26. Adequacy of surface water monitoring program	CDRMS regulation 4.05.13(2)	The current surface water monitoring program continues to adequately address the protection of the hydrologic balance.

Please feel free to contact me with any questions.

Sincerely,



Jason Musick

Environmental Protection Specialist

Jason.musick@state.co.us