

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

September 27, 2019

TO: Internal File

THRU: Steve Christensen, Coal Program Manager 

FROM: Amanda Daniels, Environmental Scientist 

RE: 1st Quarter 2019, Water Monitoring, Emery Deep Mine, C/015/0015, Task ID #5894

The Emery Deep Mine is currently an active coalmine. The coal mining operation moved from temporary cessation status back to active status on July 8, 2016.

The approved Mining and Reclamation Plan (MRP) outlines the water monitoring requirements beginning on page VI-28. Table VI-17, Emery Mine Hydrologic Monitoring Program contains a comprehensive list of all groundwater (springs/seeps), surface water, groundwater monitoring wells and Utah Pollutant Discharge Elimination System (UPDES) outfalls. Plate VI-4, Ground Water Monitoring Well and Surface Water Monitoring Site Location Map depicts the locations of the various ground and surface water monitoring sites (including the UPDES discharge/outfall points).

As part of the approved water monitoring requirements cited above, the Permittee is required to submit an annual groundwater evaluation of the two Emery Town wells (Emery Town Well #1 and Emery Town Well #2). The Emery town well information is submitted with the Emery Deep Mine's annual report. The information is in addition to the quarterly monitoring/sampling that is required at the wells.

An amendment was approved on March 4, 2019 to add additional sites to their water monitoring program. As such, beginning in 2nd quarter of 2019 monitoring wells USGS 2-1 and T1-U will be added to the monitoring program.

1. Was data submitted for all of the MRP required sites? YES NO

Springs

The MRP outlines the sampling of 5 springs within the permit and adjacent area. Flow and field parameters are sampled quarterly with water quality samples collected in the 2nd and 3rd quarters.

Bryant #1 (SP-10) was the only spring to report flow this quarter.

Streams

The MRP outlines the sampling of 8 surface water monitoring stations within the permit and adjacent area.

Of the eight surface water monitoring sites SWMS-3, SWMS-1A, SWMS-2, SWMS-5 and SWMS-4 reported flow this quarter.

Wells

The MRP outlines the sampling of 15 ground water monitoring wells within the permit and adjacent area (See Table VI-17). Table VI-17 identifies 13 wells, however; “Emery Town” was completed as two wells (#1 and #2) and “T1” is comprised of monitoring wells T1-B and T1-U.

In the first week of September 2016, the Division approved Task #5243. The MRP was revised to reflect revisions to the approved water monitoring program. Monitoring well T1-U had been compromised and could not be rehabilitated. Monitoring well TP-U (quarterly water quality and quantity sampling) was reinstated into the water monitoring program to compensate for the loss of T1-U. Additionally, Pump 3 MW was added to the ground water monitoring program (quarterly water levels).

A total of 16 wells are identified in the MRP. Ten wells are sampled for water quality on a quarterly basis with the exception of wells RDA-2, RDA-4, and RDA-6 (sampled annually in the second quarter for both field parameters and water quality). The remaining 6 wells are monitored quarterly for water level only.

UPDES

The Emery Deep Mine’s Utah Pollutant Discharge Elimination system (UPDES) Permit, #UT0022616, identifies 8 outfalls (001, 002, 003, 004, 005, 006, 007, and 009). UPDES Outfall 008 is no longer an active water monitoring site. The discharges from each of the outfalls ultimately report to Quitcupah Creek, a tributary of Muddy Creek. The receiving waters are designated according to Utah Administrative Code (UAC) R317-2-13.1 as 2B, 3C and 4. Historically, only Outfalls 001 and 003 have ever recorded a discharge. UPDES Outfall 008 is no longer active.

The Water Quality Board for the Division of Water Quality (DWQ) approved a rule change that allows for a site specific, in-stream standard for the Emery Deep’s effluent limitations based on its sulfate (SO₄) concentrations (as opposed to previous total dissolved solids-TDS standard). The new standards are identified in the currently approved UPDES permit (effective Jan 1, 2018). The modified standard established an allowable TDS concentration of 4,766 ppm (maximum monthly average) and SO₄ concentration of 3,366 ppm (maximum monthly average). The currently approved UPDES permit will expire on Dec 31, 2022.

UPDES Parameter	Established Limit
TSS	70 ppm (daily maximum)
T-Fe	1.4 ppm
Oil/Grease	10 ppm
pH	6.5-9.0
TDS	4,766 ppm (max. monthly avg)
SO4	3,366 ppm (max. monthly avg)

The Permittee submitted data for all required UPDES sites. Only Outfall 003 reported flow this quarter.

2. Were all required parameters reported for each site? YES NO

Spring Monitoring Sites

All required data was submitted for the spring monitoring sites that produced a flow this quarter (as outlined in Table VI-17).

Surface Water Monitoring Sites

The Permittee submitted all required water quality data this quarter for the surface water monitoring sites that produced a measurable flow and could be accessed.

Water Monitoring Wells

The Permittee submitted all required well data this quarter.

UPDES Monitoring Sites

Outfall 003 reported flow in January and February.

3. Were any irregularities found in the data?

Wells:

Springs/Streams:

The following parameters were more than two standard deviations from the mean historical value:

Stream 1A: pH, TSS, Dissolved Calcium, Dissolved Iron, Total Hardness, Total Calcium, Total Manganese

Stream 2: Dissolved Iron

Stream 3: Dissolved Iron, pH

Stream 4: Dissolved Iron, Dissolved Calcium

Stream 5: Dissolved Iron

UPDES:

Outfall 003 had a sample on January 8, 2019 with a TSS of 190 mg/l.

4. On what date does the MRP require a five-year re-sampling of baseline water data.

There is no commitment in the MRP to resample for baseline parameters.

5. Based on your review, what further actions, if any, do you recommend?

NA

6. Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements?

YES NO