

#4118
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WATER QUALITY MEMORANDUM Utah Coal Regulatory Program

December 27, 2012

TO: Internal File
THRU: Daron Haddock, Permit Supervisor 
FROM: Steve Christensen Environmental Scientist 
RE: 2012 2nd Quarter Water Monitoring, Consolidation Coal Company, LLC, Emery Deep Mine, C/015/0015, WQ12-2, Task ID #4118

The Emery Deep Mine is currently an in-active coalmine. The coal mining operation previously utilized room and pillar mining techniques with the use of a continuous miner machine. The mine went into temporary cessation in late 2010. The coal reserves were fully extracted (thus falling into the planned subsidence category).

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).

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.

The Permittee reported a measurable flow for spring monitoring site SP-11. Spring monitoring sites, SP-10, SP-13, SP-14 and SP-15 did not produce a measurable flow this quarter.

Streams

The MRP outlines the sampling of 8 surface water monitoring stations within the

permit and adjacent area.

Four of the eight surface water monitoring sites reported a measurable flow (1A, 2, 3 and 4). Sites 5, 8, 9 and 10 reported 'no observable flow' for this quarter.

Wells

The MRP outlines the sampling of 15 ground water monitoring wells within the permit and adjacent area (See Table VI-17). Of the 15 wells, 5 are monitored quarterly for water level only. The remaining 10 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).

Data was submitted for all of the water monitoring wells.

UPDES

The Emery Deep Mine's UPDES Permit, #UT0022616, identifies 9 outfalls (001, 002, 003, 004, 005, 006, 007, 008 and 009). 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) has approved a rule change that would allow for a site specific, in-stream standard for the Emery Deep's effluent limitations. The modified standard will establish an allowable TDS concentration of 3,800 parts per million (ppm) and a 2,000-ppm concentration of sulfate. DWQ representatives have indicated that they are waiting for Environmental Protection Agency (EPA) approval before the permit is modified from its current standard of 2,600-ppm (the 2,600 ppm standard became effective on November 30th, 2011). The previous standard for TDS was 3,500 ppm).

DWQ has been in negotiations with the Permittee for several years regarding a modification to their existing UPDES permit. The Permittee has entered into a compliance schedule as allowed under the rules of the Clean Water Act to modify their permit. The compliance schedule would produce a site-specific standard for the Emery Deep UPDES permit.

UPDES Parameter	Established Limit
TSS	70 ppm (daily maximum)
T-Fe	2.1 ppm
Oil/Grease	10 ppm

pH	6.5-9.0
TDS	2,600 ppm as of November 30 th , 2011
SO4	2,000 ppm

The Permittee submitted data for all required UPDES sites. Outfall 003 was the only monitoring point to report a discharge for 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 (as outlined in Table VI-17) that produced a flow.

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.

Water Monitoring Wells

The Permittee submitted the required data for all wells that are accessible.

UPDES Monitoring Sites

Outfall 003 was the only outfall that produced a discharge during the quarter. All required parameters were reported for Outfall 003.

The Permittee did not report any data for the month of July for the following UPDES outfalls: 001, 002, 004, 005, 006, 007, 008 and 009. As these outfalls historically do not discharge, the Permittee will need to verify that this is the case for the month of July. The Permittee will need to add the data to the Division of Oil, Gas and Mining water quality data-base.

3. Were any irregularities found in the data? YES NO

The following samples were reported outside of two standard deviations from the mean:

Sample ID	Date	Type of Site	Parameter	Value	STD. Deviations
SWMS-2	6/20/2012	Stream	Cl	147 ppm	2.23
SWMS-2	6/20/2012	Stream	SO4	6,169 ppm	2.91
SWMS-2	6/20/2012	Stream	T-Hdns	3,220 ppm	2.41
SWMS-2	6/20/2012	Stream	TDS	9,735 ppm	2.82
SWMS-2	6/20/2012	Stream	T-Mg	487.98 ppm	2.61
SWMS-2	6/20/2012	Stream	T-K	20.55 ppm	2.06
SWMS-2	6/20/2012	Stream	T-Na	1,732.2 ppm	2.96
SWMS-2	6/20/2012	Stream	Cond(f)	10,010 umhos/cm	3.24
SWMS-2	6/20/2012	Stream	D-Ca	484.64 ppm	2.12
SWMS-2	6/20/2012	Stream	D-Mg	487.98 ppm	2.29
SWMS-2	6/20/2012	Stream	D-K	20.55 ppm	2.27
SWMS-2	6/20/2012	Stream	D-Na	1,732 ppm	2.91
H-U	6/20/2012	Monitoring well	Depth to Water	101.5'	3.61
RDA-2	6/20/2012	Monitoring well	Cl	81 ppm	2.43
SM1-3	6/20/2012	Monitoring well	T-Alk	223 ppm	2.39

The same concentration was reported for several parameters for surface water monitoring site 2 (SWMS-2). 1,732 ppm was reported for both dissolved sodium (D-Na) and total sodium (T-Na). 20.55 ppm was reported for both dissolved potassium (D-K) and total potassium (T-K). 487.98 ppm was reported for total magnesium (T-Mg) and dissolved

magnesium (D-Mg). It appears that the Permittee may have input the data incorrectly and should notify the Division as soon as possible with the correct concentrations.

Water monitoring well H-U continues to show a drop in water level. On October 11th, 2012, the Division received a citizen complaint from Mr. Jon Sundstrom. Mr. Sundstrom is a property owner in the area directly adjacent to the Emery Deep Mine permit boundary (T 22 S, R 06 E, SE ¼ of Section 15). Mr. Sundstrom is concerned that mining activity at the Emery Deep Mine may be impacting state appropriated water rights on his property. Mr. Sundstrom indicated that depressions have been forming on his property. On November 27th, 2012, the Division conducted a field inspection of the Sundstrom property. At this time, it's uncertain as to whether mining activity is producing impacts on the Sundstrom property. The Division will continue to monitor water levels in well H-U and conduct additional field inspections in the spring of 2013.

Several monitoring wells have been reported as dry or having some type of obstruction in them. Monitoring well RDA-6 was reported as being "dry" during the 2nd quarter and as having "hit something at 14.5 feet" in the 3rd quarter. Additionally, monitoring wells T1-U and USGS 4-1 have been reported as dry. The Permittee must address the condition of these monitoring wells. If the integrity of the wells has been impacted and quality data is not obtainable from these locations, the Permittee must address how they will supplement their ground-water monitoring plan.

UPDES Sites

Historically outfalls 002, 004, 005, 006, 007, 008 and 009 do not produce a discharge. These outfalls did not report a flow again for this quarter. Outfalls 001 and 003 are the primary outlets for discharging the ground water encountered within the mine works.

However, only Outfall 003 reported a flow this quarter. Outfall 001 did not report a flow this quarter. The TSS and T-Fe values reported for Outfall 003 were well within the established UPDES limits of 70 ppm and 2.1 ppm respectively.

The compliance schedule process (that is ongoing with the Division of Water Quality) has identified a future compliance standard for Emery Deep discharge water into Quitcupah Creek of 2,000 ppm for SO₄. The reported sulfate concentrations were all within the to-be established limit of 2,000 ppm (average of 1,511.5 ppm based on five sampling events).

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?

Continue to monitor the compliance schedule process currently underway between the Permittee and DWQ.

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6. Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? YES NO

7. Follow-up from last quarter, if necessary.

See item 5 above.