#3911
OK

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

March 27, 2012

TO: Internal File

THRU: Daron R. Haddock, Coal Program Manager DRH

FROM: Steve Christensen, Environmental Scientist III SCC

RE: 2011 3rd Quarter Water Monitoring, Consolidation Coal Company, Hidden Valley Mine, C0150007-WQ11-3, Task ID #3911

The Hidden Valley Mine is in reclamation. At present, the Permittee has no immediate plans for additional coal mining activity at the site. Two surface-water monitoring sites are established to monitor Ivie Creek, a perennial stream adjacent to the mine site. The sites; Upper Ivie #1, and Lower Ivie #2, have been established to quantify any changes in quality or quantity to the Ivie Creek drainage as a result of coal mining related activity. Due to the lack of springs in the area and the lack of underground development/activity, no ground water monitoring is required at this time by the approved Mining and Reclamation Plan (MRP).

Section UMC 817.52 of the approved MRP discusses the water-monitoring plan. The two surface monitoring sites will be sampled and measured during the months of May and September (2nd and 3rd quarters only). Field parameters will be measured and water samples collected at the same time. Parameters for water analysis are listed in section UMC817.52 of the MRP. There are no springs, ponds or wells on the site. The monitoring program will continue until bond release is obtained.

The Utah Division of Water Quality (DWQ) has assigned use classifications to Ivie Creek and its tributaries from the confluence with Muddy Creek to Utah highway 10. The classifications are:

- 2B: Protected for secondary contact recreation such as boating, wading or similar uses.
- 3C: Protected for non-game fish and other aquatic life, including necessary aquatic organisms in their food chain.
- 4: Protected for agricultural uses including irrigation of crops and stock watering.

Numeric criteria set forth in Utah Administrative Code (UAC) R317-14, have been established for each of the beneficial use classes assigned to waters in the State. Of the use

classifications assigned to the streams in the Western Colorado River Watershed (WCRW), numeric criteria for TDS only apply for agricultural use (beneficial use class 4). Section R317-2 of the UAC identifies a standard TDS value of 2,600 mg/L for Ivie Creek and its tributaries. The primary factors for increased TDS loads in the lower reaches of the Muddy Creek Watershed are from agricultural irrigation practices, surface runoff and natural geological loadings.

1. Was data submitted for all of required sites?

Streams

YES [X] NO [ ] Data was reported for both surface water monitoring sites (Upper Ivie #1 and Lower Ivie #2).

2. Were all required parameters reported for each site?

Streams YES [X] NO [ ]

3. Were irregularities found in the data?

Streams YES [ ] NO [X]

A TDS value of 2,600 mg/L is the site-specific standard as established by UAC R317-2, *Standards for Waters of the State*. The TDS values obtained for both Upper Ivie #1 and Lower Ivie #2 for this quarter were outside of the standard with reported values of 3,181 mg/L and 3,365 mg/L respectively.

The Price River, San Rafael River and Muddy Creek TMDLs for Total dissolved Solids West Colorado Watershed Management Unit; Utah document (Utah Division of Water Quality, 2004) discusses how seasonal variations in TDS concentrations have been detected.

Based upon previous sampling data, seasonal TDS trends for the Ivie Creek drainage generally produce higher values during the 2nd quarter (spring/early summer) as opposed to the 3rd quarter (late summer/ fall). That trend was not followed this quarter. Typically as a result of snowmelt, irrigation return flow and increased precipitation during the spring/early summer months, a flushing event is produced that results in higher TDS values during the 2nd quarter of the year.

Due to the general lack of appreciable precipitation for the area (averaging <10"/year annually), the relatively large network of ephemeral drainages in the Ivie Creek watershed remain dry for a majority of the year. As a result, there are significant periods of time where sediments may be deposited in these ephemeral drainages by wind erosion. Following the spring 'flushing event', the data clearly shows that TDS values drop significantly between the 2nd and 3rd quarter of the year as the sediment has been washed down gradient.

Historically, the Ivie Creek drainage has produced TDS levels well above the 2,600-mg/L standard discussed above. However, as the site has been reclaimed and in stable condition, it's unlikely that the elevated TDS levels are a result of coal mining related activity. Recent field inspections by Division staff have documented the site as being in stable condition with no signs of excessive erosion or gullies. However, continued monitoring and field inspections will be conducted.

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

The approved MRP does not outline a five-year baseline re-sampling requirement.

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

NA

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

[ ] YES [X] NO

6. Follow-up from last quarter, if necessary. Did the Mine Operator submit all the missing and/or irregular data (datum)?

NA.