

#3903

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WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

March 28, 2012

TO: Internal File

THRU: Steve Christensen, Permit Supervisor *SC*

FROM: Ken Hoffman, Hydrologist *KH*

RE: 2011 Third Quarter Water Monitoring, Alton Coal Development LLC, Coal Hollow, C/025/0005, WQ11-3, Task ID #3903

The Coal Hollow mine is an active surface mine. The permit application was approved on October 15, 2009 and a Permit was issued to Alton Coal Development, LLC (ACD) on November 8, 2010. Mining activity commenced in November 2010. Surface mining of coal at the Coal Hollow mine is expected to continue for approximately three years.

The water monitoring program for the Coal Hollow mine is described in Section 731.200 of the MRP. Water monitoring locations are listed in Table 7-5 and shown on Drawing 7-10. Monitoring protocols are described in Table 7-4 and the specific protocol(s) assigned for each location are listed in Table 7-5. Operational/Reclamation and Baseline monitoring parameters are listed for surface water on Table 7-6A and Table 7-6B, respectively, and for groundwater on Table 7-7A and 7-7B, respectively. Special Condition No. 4 of the mine Permit requires the Permittee to monitor for selenium where water leaves the minesite, during operational and reclamation phases.

This report was prepared from monitoring data queried from the UDOGM database. The data that support this report were collected and submitted to the database by Alton Coal Development (ACD).

1. Were data submitted for all required sites?

Springs YES [X] NO []

Twelve springs are monitored quarterly (Table 7-5). All of the spring locations except one (SP-3) are located in Sink Valley Wash (Drawing 7-10). Spring location SP-19 is not shown on Drawing 7-10, but is shown on Drawing 7-1 (Spring and Seep Locations). Six springs are monitored for field parameters only: Sorensen Spring, SP-3, SP-16, SP-22 and SP-23. Six springs are monitored for field parameters and laboratory analyses: SP-4, SP-6, SP-8, SP-14, SP-20, and SP-33.

All springs were monitored during the Third quarter 2011. Flow measurements were recorded at the following spring sites:

SAMPLE	SITE	Flow (gpm)
SORENSEN SPRING	Alluvial spring Sink Valley	0.24
SP-14	Alluvium - Sink Valley	2.02
SP-16	(Teal Spring) - Alluvium - Sink Valley	1.09
SP-19	(Sorenson Pond)- Alluvium - Sink Valley	Not applicable for this quarter
SP-20	Alluvium - Sink Valley	8.93
SP-22	Alluvium - Sink Valley	0.87
SP-23	Alluvium - Sink Valley	<0.1
SP-3	Pediment Alluvium - Lwr Sink Valley Wash	Not applicable for this quarter
SP-33	(Johnson Spring) - Alluvium - Sink Villy	5.35
SP-4	Alluvium/Fault? - Lwr Sink Valley Wash	0.61
SP-6	Alluvium - seep in Sink Valley	<5
SP-8	Alluvial spring at Dames Ranch	19.9

Notes: Data were collected from September 6-10, 2011. Regional Palmer Hydrologic Index Value: 4.81

Streams YES [X] NO []

Ten stream sites are monitored quarterly. Field parameters and laboratory analyses are performed for SW-2 (Kanab Creek below Robinson Creek); SW-3 (Kanab Creek above permit area); SW-4 and SW-5 Lower Robinson Creek [LRC] above permit area and above Kanab Creek, respectively); SW-6 (Sink Valley wash at permit boundary); SW-8 (Swapp Hollow Creek above permit area); and SW-9 (Sink Valley Wash below permit area). Field parameters only are measured at locations BLM-1 (LRC adjacent to mined areas); RID-1 (irrigation ditch in Robinson Creek); and SW-101 (LRC in permit area).

All required stream sites were monitored for the quarter during September 6, 2011 to September 10, 2011. No flow was present for stream monitoring sites SW-101, SW-4, SW-6, and SW-9. Flows reported for Lower Robinson Creek averaged 14 gpm. Flow ranges from Kanab Creek averaged 144 gpm; Swapp Hollow 81 gpm; and Sink Valley Wash at 0 gpm.

Wells **YES [X] NO []**

Table 7-5 identifies 32 wells which will be monitored quarterly when accessible. Wells will be monitored for water elevation only except for five wells, which will be monitored for water elevation and laboratory parameters: Y-61 (artesian Sink Valley alluvium above mining), LR-45 (LRC alluvium below mining), LS-85 (artesian Sink Valley alluvium below mining), SS-30 (Sink Valley alluvium below mining) and UR-70 (LRC alluvium above mining). Several wells are expected to be destroyed or rendered inoperable due to mining activities (MRP page 7-59). These wells are to be monitored quarterly until they are destroyed or rendered inoperable.

All groundwater wells were monitored during third quarter 2011 including well LS-28 which was sampled for analytical parameters where only gauging was required.

UPDES **YES [X] NO []**

Discharges from the Coal Hollow mine are authorized under UPDES General Permit for Coal Mining application number UTG040027. The UPDES permit, which expires on April 30, 2013, authorizes discharges from five outfalls: 001, 001B, 002, 003 and 004. These outfalls correspond to sediment ponds 1, 1B, 2, 3 and 4. Sediment pond locations are shown on Drawing 5-25. The UPDES permit identifies monitoring frequency and required parameters, effluent limitations, and storm water requirements. To date sediment ponds 1, 1B, 2 and 3 have been constructed.

The Operator has submitted discharge monitoring report (DMR) data electronically to the Division's water database this quarter. Special Condition No. 1 of the mine Permit requires the Operator to submit water quality data for the Coal Hollow Mine in an electronic format through the Electronic Data Input web site. No UPDES locations discharged during the third quarter 2011.

2. Were all required parameters reported for each site?

Springs **YES [X] NO []**

Streams **YES [X] NO []**

Stream samples were analyzed for the required operational monitoring parameters specified in the MRP. Special Condition No. 4 of the mine Permit requires the Permittee to monitor for selenium where water leaves the minesite, during operational and reclamation phases. Samples from stream sites SW-2, SW-3, SW-5, SW-8, and SW-9 are analyzed for dissolved selenium (no flow was present at SW-9). The Operator should update the water monitoring section of the MRP to clearly indicate the locations and frequencies where dissolved selenium monitoring will be performed to comply with Permit Condition No. 4.

Wells **YES [X] NO []**

UPDES **YES [X] NO []**

The Operator has submitted discharge monitoring report (DMR) data electronically to the Division's water database. In addition to the monitoring requirements established by the UPDES permit, Special Condition No. 4 of the mine Permit requires the Permittee to monitor for selenium where water leaves the minesite, during operational and reclamation phases.

3. Were irregularities found in the data?

Springs **YES [X] NO []**

SP-20 September: dissolved calcium, dissolved magnesium, total cations, cation-anion balance

SP-23 September: water temperature

SP-33 September: field conductivity, chloride, cation-anion balance

SP-4 September: cation-anion balance

SP-6 September: Water temperature

SP-8 September: total dissolved solids, dissolved magnesium, total cations, cation-anion balance

Streams **YES [X] NO []**

SW-3 September: cation-anion balance

SW-5 September: total suspended solids

SW-8 September: cation-anion balance

Wells **YES [X] NO []**

LR-45 September: field conductivity, total dissolved solids, dissolved calcium, chloride, sulfate

LS-28 September: cation-anion balance

LS-85 September: total dissolved solids, dissolved calcium, dissolved magnesium, dissolved sodium, total cations, cation-anion balance

SP-14 September: total dissolved solids

SS-30 September: dissolved calcium, dissolved magnesium, dissolved potassium, dissolved sodium, total cations, cation-anion balance

UR-70 September: cation-anion balance

Y-61 September: dissolved calcium, dissolved magnesium, dissolved sodium, total cations, cation-anion balance

Y-98 September: depth

UPDES YES [] NO [X]

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

Re-sampling for baseline parameters is due every five years during the third or first quarter. Baseline parameters for surface water and groundwater monitoring are listed in Table 7-6B and Table 7-7B, respectively. Assuming that the five-year baseline resampling will coincide with permit renewal, the next baseline resampling is due during third or fourth quarter 2015.

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

The Operator should submit the following changes as an amendment to the MRP:

- UPDES samples should be monitored for *dissolved* Selenium, not *total* Selenium, in accordance with Permit Condition No. 4.

Please be aware that with the impending permitting action of expanding the mine into the Federal coal lease areas, it is imperative that baseline data collection for those areas begin to a minimum of two years prior to permit revision approval. The regulations under R645-301-724.100 and 724.200 require that groundwater and surface water data be gathered to assess seasonal quality and quantity. Division guidance document Tech-004 recommends a minimum of two years of baseline data collection be completed prior to permit issuance or revision. Please update the Division as to the status of the baseline data collection activities for proposed expansion areas.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? YES [] NO [X]

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

- Revise MRP Drawing 7-10 (Water Monitoring Locations) to show spring monitoring location SP-19; and
- Revise the monitoring discussion in the MRP and associated tables to specify the locations and frequencies where selenium monitoring will be performed in accordance with Permit condition No. 4.