

## OGMCOAL - Fourth Quarter 2010 SUFCO Mine Water Monitoring Report

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**From:** April Abate  
**To:** mdavis@archcoal.com  
**Date:** 7/6/2011 8:50 AM  
**Subject:** Fourth Quarter 2010 SUFCO Mine Water Monitoring Report  
**CC:** Karl Houskeeper; OGMCOAL@utah.gov  
**Attachments:** 06212011a.pdf; April Abate.vcf

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Hello Mike,

Here is your 4th Quarter Water Monitoring Report attached. Please feel free to call if you have any questions or comments.

Regards,  
April

**April A. Abate**

*Environmental Scientist III*

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# WATER QUALITY MEMORANDUM

## Utah Coal Regulatory Program

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June 21, 2011

TO: Internal File

THRU: James Smith, Permit Supervisor *JS 06/23/11*

FROM: April A. Abate, Environmental Scientist III *AAA 6-21-2011*

RE: 2010 Fourth Quarter Water Monitoring, Canyon Fuel Company, LLC, SUFCO Mine, C/041/0002, WQ10-04, Task ID #3677

The SUFCO Mine is an operating longwall mine. Current operations are in the Quitchupah and Muddy Tracts. Water monitoring requirements can be found in Section 7.3.1.2 of the MRP, see Tables 7-2, 7-3, 7-4, 7-5, and 7-5A. Page 7-48 contains the important statement that (non Box-Canyon, non-UPDES) "monitoring sites are sampled three times per year," meaning the second, third, and fourth quarters.

SUFCO has added two additional stream monitoring points to their plan: SUFCO 006A and SUFCO 006B are intended to monitor the upstream and downstream flow along the South Fork of Quitchupah Creek on a quarterly basis and every two weeks while mining is taking place within a 15-degree angle of draw of the stream channel.

**1. Was data submitted for all of the MRP required sites?**

**Springs** YES  NO

*The MRP requires the Permittee to monitor 25 springs during the second, third, and fourth quarter as per Table 7-2. Some require full laboratory analysis according to Table 7-4, while others simply require field measurements.*

Each of the required spring locations were monitored during the fourth quarter of 2010.

**Streams** YES  NO

*The MRP requires the Permittee to monitor 20 streams during the second, third and fourth quarter as per Table 7-2.*

Each of the required stream locations were monitored during the fourth quarter of 2010.

**Wells**

YES  NO

*The MRP requires the Permittee to monitor water levels for 6 wells. Monitoring wells US-80-2, 89-20-2W, US-81-4, and 01-8-1 are monitored quarterly. Monitoring wells US-80-4 and US-79-13 are monitored annually during the 3<sup>rd</sup> quarter.*

The above-required four wells were gauged during the fourth quarter of 2010.

Additional wells associated with the waste rock disposal site are in the database including: WRDS-B3, WRDS-B5, WRDS-B6, WRDS-B8, and WRDS-B9. The sampling protocol for these wells is found in Volume 3, pages 4-10 through 4-12. These wells were sampled for analytical parameters during the fourth quarter of 2010. Three wells: WRDS-B3, B5 and B9 were dry this quarter.

**UPDES**

*The UPDES Permit/MRP require bi-weekly monitoring of 3 outfalls: UT0022918-001: mine water discharge to Spring Canyon; UT0022918-002: sedimentation pond discharge to Spring Canyon; and UT0022918-003A: the mine water discharge to the North Fork of Quitchupah Creek.*

The Permittee submitted all required samples for the UPDES sites. Outfall 001 reported no flow this quarter. The mine water discharge outfall location to the North Fork of Quitchupah Creek averaged a flow of 2,354 gallons per minute (gpm) and an average Total Dissolved Solids (TDS) concentration of 621 mg/L this quarter. Outfall 002 from below the sediment pond discharged this quarter at an average rate of 20.4 gpm with an average TDS concentration of 928 mg/L.

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

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

The following sample locations reported results outside of at least two standard deviations:

Sample ID	Parameter	STD. Deviation
Stream 007	Dissolved Oxygen	2.16
Stream 041	BiCarb CaCO3	2.47
Stream 046	BiCarb CaCO3	6.63
Spring 047	BiCarb CaCO3	3.33
Spring 47A	BiCarb CaCO3	4.27
Stream 090	Fld Conductivity	2.88
Spring M-SP18	Water Temp	2.49
Spring M-SP39	Water Temp	2.2
Spring PINES 100	BiCarb CaCO3	2.41
	SO4	2.03
Stream PINES 403	BiCarb CaCO3	3.06
	D-Ca	2.65
	TDS	3.11
	Conductivity	2.79
	SO4	2.22
WRDS B6	BiCarb CaCO3	6.11
	D-K	3.05
WRDS B8	BiCarb	7.9
	BiCarb CaCO3	7.73

At the PINES 100 spring location, dead rodents were found in the spring box. Sulfate levels appear to be rising at this location over the past two quarters. Sulfate levels are also on the rise at stream location PINES 403. For the stream samples, Sample 047 - the pumphouse discharge had alkalinity, dissolved calcium and dissolved magnesium all outside of two standard deviations during the 3<sup>rd</sup> quarter but returned to average levels during 4<sup>th</sup> quarter. Bicarbonate as CaCo3 is showing an overall increasing trend in the stream and spring samples collected.

In the waste rock wells, well WRDS-B6 and well WRDS-B8 also reported Bicarbonate levels outside of 6.11 and 7.73 standard deviations, respectively.

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?

As a general comment, the existing water monitoring plan in the MRP contains several outdated references to sampling protocols that were performed in the 1990s. The Division recommends that the water monitoring plan be updated in the near future that is more reflective of current sampling protocols (i.e. addressing the U.S. Forest Service sampling locations in the MRP).

Trends in bicarbonate levels of the water chemistry should continue to be monitored.

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