#3852
OK

WATER QUALITY MEMORANDUM
Utah Coal Regulatory Program

December 20, 2011

TO: Internal File

THRU: Steve Christensen, Permit Supervisor SKC

FROM: April A. Abate, Environmental Scientist III AAA 12-20-2011

RE: 2011 Second Quarter Water Monitoring, Canyon Fuel Company, LLC, SUFCO Mine, C/041/0002, WQ11-02, Task ID #3852

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.

Additional monitoring is taking place in the West Lease area with new monitoring locations GW-8 and GW-9 established for Lizonbee Springs, Mud Spring and Broad Hollow Spring.

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

Springs **YES** ☒ **NO** ☐

The MRP requires the Permittee to monitor 29 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.

All spring locations were monitored during the second quarter of 2011. No flow was reported from the Link Canyon portal areas (East and West locations), SUFCO-89, GW-20, Mud Spring, and PINES 105, 218, 310, and 311. No flow was observed from Mud Spring but standing water collected inside the spring box was sampled for operational parameters.

Streams YES ☒ NO ☐

The MRP requires the Permittee to monitor 20 streams during the second, third and fourth quarter as per Table 7-2. Perennial stream monitoring of Box Canyon is required at FP-1 and FP-2 at the beginning of the month of October each year.

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 3rd quarter.

All required wells were gauged according to the monitoring plan during the second quarter of 2011.

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 locations that did report data reported the following:

	SED POND Q TO E SPRING CYN Outfall: UT0022918-002	Mine Water Discharge to N.Fk. Quitchupah Outfall: UT0022918-003A
Average Flow (gpm)	47.9	2,385
Average TDS (mg/L)	730.25	655

All data reported were within the compliance requirements of the UPDES Permit No. UT0022918.

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	Date	Parameter	Value	STD. Deviation
Spring GW-21	6/27/2011	Temp.	16.8 C	>2.36 elevated for June
SUFCO 047	6/28/2011	BiCarb	410 mg/L	>2.44
SUFCO 047	6/28/2011	D-Na	24.2 mg/L	>2.41 historic maximum
PINES 100	6/27/2011	BCarb	181 mg/L	>2.53 historic maximum
PINES 100	6/27/2011	Cat-Ani balance	6.1%	Out of acceptable range of 5%
PINES 100	6/27/2011	D-Ca	58.8 mg/L	>2.83 historic maximum
PINES 100	6/27/2011	D-Mg	13.7 mg/L	>3.11 historic maximum
PINES 100	6/27/2011	D-Na	21.4 mg/L	>2.89
PINES 100	6/27/2011	SO4	41 mg/L	>2.35
SUFCO 007	6/18/2011	T-Fe	15.9 mg/L	>2.78 spike of iron (later returned to normal levels based on September 2011 data)
M-STR4	6/27/2011	Flow	142 mg/L	>3.85
PINES 403	6/18/2011	Chloride	19 mg/L	>2.27

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?

Flows were higher than average for the month of June at the stream locations. This is likely attributed to the good water year for Region 4 with average Palmer Hydrologic Index rates of 4.78 indicating an extremely wet year in Utah.