0047

Canyon Fuel Company, LLC.
Skyline Mine
A Subsidiary of Arch Western Bituminous Group, LLC.

DATE: 6/9/2006

FAX COVER SHEET

Incoming
C/007/0025

TO: Dana Dean

COMPANY: Division of Oil, Gas & Mining

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5 (including this one)

Dana,

Attached are modifications you recommended in your email. I have circled the changes in the redline-strikeout version so they can be readily identified in the fax. I'll call you to see if the changes meet your expectations prior to submitting the information.

Thanks again for your help on this - Gregg

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In other than the stated years, 3rd Quarter sampling will be identical to 2nd and 4th Quarter laboratory analyses. 4th Quarter monitoring (October-December) should be conducted prior to December due to snow conditions eliminating access. ~~Except where noted, samples are obtained at the monitoring sites three times a year. The monitoring periods are defined by the seasons. Samples are collected during the high flow season, April through June and the low flow season in August through September.~~

~~Late fall samples are obtained in October through November. These time periods were selected because the sites are usually inaccessible until late June and after November due to snow depth and frozen water courses. Several sites on Eccles Creek are monitored in December through February since they are adjacent to a maintained road and the water discharged from the mine normally keeps the stream from freezing over.~~

Water quality samples are collected from the 25 selected springs in the project area. The samples are comprehensively analyzed each year for the parameters listed in Table 2.3.7-1 and Table 2.3.7-2. All water samples collected for use in this permit have been collected and analyzed according to methods in either the "Standard Methods for the Examination of Water and Wastewater" or the 40 CFR parts 136 and 434. A listing identifying the station types is shown on Table 2.3.7-3.

In addition to the collection of the outlined water quality data, water level data has been collected from each of the wells (if functional) as scheduled on Tables 2.3.7-1, 2.3.7-2, ~~2.3.7-2A~~ and 2.3.7-3, and noted on Plate 2.3.6-1. Water quality samples will be collected from the Waste Rock Disposal Site Well 92-91-03. ~~in accordance with the schedule and parameter list shown on Table 2.3.7-5.~~ Summary information on these observation wells is found on Table 2.3.7-4. ~~Three~~Four wells, W79-10-1A, 79-14-2B and 79-22-2-1 and 79-22-2-2 have experienced casing failures, and are currently nonfunctional. There are no plans to replace these wells.

The amount of water discharged from each mine on each monitoring occasion will also be monitored at the mine mouth through the use of a totalizing flow meter or similar device. Significant changes in the source of water in the mine will be noted during the period of

completed in August 2002. ~~but the interim report is not yet available. Skyline will submit this first and subsequent first progress reports for this project with its annual reports.~~ Annual updates to the study have been submitted with the annual reports. This study concluded after the 2005 information was submitted based on the initial parameters of the study which indicated the study would last through one (1) year after discharge from the mine decreased to a sustained flow less than 5,000 gpm. The last stability analysis was conducted in Fall 2005 and the last water monitoring was conducted in 1st Quarter 2006.

Samples obtained at the MC-sites ~~will be~~ were monitored for total flow, TDS, TSS, and total phosphorous. In addition a stream stability cross-section and reach survey ~~will be~~ was conducted approximately 75 yards downstream of the MC-6 monitoring location. The results of these analyses ~~will be~~ were reported with the other mine water quality monitoring reports while the study was being conducted (2002-2005).

Sites MD-1, JC-1, JC-3,and ELD-1 were also added to the monitoring site list. MD-1 is a compostie sample of the all the water discharged from Skyline Mine to Eccles Creek. JC-1 and JC-3 are samples of the water discharged from the two James Canyon ground and mine dewatering wells. ELD-1 reports the total flow-only from both JC-1 and JC-3. MD-1 and ELD-1 are monitored for total flow and the results are reported to the Division on a montly basis. Quarterly, MD-1, JC-1, and JC-3 are also monitored for TSS, TDS, and total phosphorous. Since JC-3 is a PacifiCorp UPDES site, it is monitored each month for flow, TSS, TDS, oil and grease, and total iron. The UPDES sampling results are forwarded to the Division monthly.

Spring monitoring sites WQ1-39, WQ3-6, WQ3-26, WQ3-41 WQ3-43, and WQ4-12 were added to the permit. Surface water sites CS-19, CS-20,and CS-21 were added as were wells 91-26-1 and 91-35-1. All of these sites are in the North Lease area. Location of these samples sites are illustrated on Drawing 2.3.6-1.

Skyline Mine has also obtained numerous water samples from within the mine for age-dating purposes. Samples have been analyzed for both stable and unstable isotopes; the majority being analyzed for tritium and carbon 14 content. The analyses results of these samples is discussed in detail in the July 2002 Addendum to the PHC. The results

Table 2.3.7-2
Water Quality Analytical Schedule
~~Streams and Springs~~
~~High Spring (April - June),~~
~~Late Fall (October - November), and~~
~~Winter (December - February) Flows~~

Field Measurements
Flow or Depth to Water
pH
Specific Conductance
~~Temperature, Air~~
Temperature, Water
~~Turbidity~~

Laboratory Measurements
~~Ammonia~~
Bicarbonate
Carbonate
Calcium, dissolved
Chloride
Iron, Total ~~and dissolved~~
Magnesium, dissolved
Manganese, total ~~and dissolved~~
Nitrate + Nitrite
~~Phosphate (Orthophosphate)~~ Phosphorus, Total
Potassium, dissolved
Sodium, dissolved
Sulfate
Total Alkalinity
Total Hardness
Total Suspended Solids
Total Dissolved Solids
Cation / Anion balance

Baseline Laboratory Measurements
Acidity
Alkalinity, Total
Barium, dissolved
Boron, dissolved
Bicarbonate
Calcium, dissolved
Carbonate
Cation / Anion balance
Chloride
Copper, dissolved
Hardness, Total
Iron, Total and dissolved
Lead, dissolved
Magnesium, dissolved

The volume of water discharged from the mine increased significantly in August 2002 after large volumes of ground water were encountered within the mine. The mine was concerned about what effects the increased flows might have on Eccles and Mud Creeks. EarthFax Engineering, Inc. was contracted to perform a stream bank stability analysis on the streams using flows ranging between 5,000 and 30,000 gpm. The initial results of the report indicated that the stream banks would be stable at flows up to 30,000 gpm. Further study was requested by the Division and EarthFax was again contracted to continue the study of the effects on Mud and Eccles Creeks of sustained increased discharges from the Skyline Mine. The study will continue as long as the mine is discharging flows in excess of the pre-September 2001 rates plus one year. Mine discharge decreased below a sustained 5,000 gpm in December 2003. The last update was submitted with the 2005 Annual Report. The study consistsed of the following:

Reference sites ~~have been~~ were established on Eccles and Mud Creeks corresponding to cross sections used in previous investigations (EarthFax Engineering, 2002) and were monitored from 2002 through 2005. The reference sites were established in general conformance to the recommendations of Harrelson et al. (1994). This involved the following:

- Establishing benchmarks at each site. Benchmarks will consist of cement or boulder monuments, with a metal marker stamped with the site number.
- Establishing monumented cross sections. The endpoints of cross sections will be marked with roof bolts or steel reinforcing bar that has been driven into the ground. These bars will be painted to increase visibility.
- Surveying the channel at each site. Surveying will be performed using a level and survey rod, with both the cross section and longitudinal profile of the stream being surveyed.