0041

#3407
OK

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

November 19, 2009

TO: Internal File

THRU: April Abate, Lead 12-16-2009

FROM: Ingrid Wieser, Environmental Scientist II

RE: Midterm Permit Review, Canyon Fuel Company, SUFCO Mine, C/041/0002 and task #3407

SUMMARY:

On September 21, 2009 the Division commenced the Midterm Permit Review of Canyon Fuel Company's SUFCO Mine. The following items were selected for review during the midterm:

1. A review of the mine plan to ensure that the requirements of all permit conditions, division orders, notice of violation abatement plans, and permittee initiated plan changes are appropriately incorporated into the mine plan document.

2. A review to ensure that the mine plan has been updated to reflect changes in the Utah Coal Regulatory Program that have occurred subsequent to permit approval (example: compliance with U.S. Fish and Wildlife Department - Colorado River Endangered Fish Recovery Program).

3. A review of the applicable portions of the permit to ensure that the mine plan contains commitments for application of the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area.

4. An AVS check to insure that Ownership and Control information is current and correct, verify compliance status of unabated enforcement actions, determine status of any outstanding finalized penalties, and verify that there are no demonstrated patterns of violation.

5. A review of the bond to ensure that it is in order and that the cost estimate is accurate and is escalated to the appropriate current-year dollars.

6. A review of the mining and reclamation plan for compliance with operator commitments related to variances or special permit conditions (including but not limited to subsidence control/monitoring plans and reporting requirements, variances to AOC, experimental practices, electronic database water monitoring reporting, raptor surveys, revegetation test plots, etc.).

7. The Division may conduct a technical site visit, in conjunction with the assigned compliance inspector, to document the status and effectiveness of operational, reclamation, and contemporaneous reclamation practices.

The midterm review is not recommended for approval. The permittee must submit the following in accordance with:

R645-301-333: The Spring/seep and associated riparian vegetation loss in the East Fork of Box Canyon and the degradation of the Link Canyon Trail columbines in Pines Tract must be discussed with applicable agencies to determine if a mitigation plan should be developed and submitted to the Division for approval. (Mitigation could include fencing existing riparian areas to prevent overgrazing by cattle, see page 3-40 of the MRP).

R645-301-322.220 & 301-322: Color infrared photos were submitted to the Division in 2003 and 2008 annual reports. The 2003 photos do not have any associated georeferencing files (i.e. world files- .jgw) so that they can be compared to the 2008 photos. The permittee must submit an analysis of the two sets of photos to the Division that determines whether "substantiated mining-induced changes occurred in the vegetation within the affected areas of the East Fork of Box Canyon."

TECHNICAL ANALYSIS:

RECLAMATION PLAN

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

North Water Springs/Joes Mill Pond

North Water Spring is a developed spring above panel 5L of SUFCO mine. It was undermined in 2005 and significant surface disturbances occurred. Several site visits were conducted in the area with all associated agencies. In 2006, the Division made the finding that material damage had occurred at the spring. (Outgoing/0013.pdf). The most recent site visit and discussion on the issue occurred on October 19, 2009. The Division, USFS and SUFCO representatives attended a site visit to North Water Springs area to assess the subsidence related damage to the riparian area as well as the current proposed mitigation plan. Piezometers had been installed and measured the water level at 20 ft. below the surface. A trough is located at the North water springs that cattle farmers have used since 2000. The permittee plans to drill two wells at the north water springs and at the Joe's mill spring. The wells will be powered with solar panels and will provide water for cattle and reestablish the riparian area.

Colorado River Endangered Fish Protection

Water depletions related to coal mining are listed on page 3-40 of Chapter 3. The following items are listed in the consumption calculations. Moisture added to coal by cutting and dust suppression, ventilation consumption, coal producing consumption, sediment pond evaporation, subsidence effects on springs and seeps, alluvial well pumpage, alluvial aquifer abstractions, deep aquifer pumpage, post mining inflow to workings, coal moisture loss, and direct diversions. The coal moisture loss equates to approximately 466.9 acre/ft year. However, the permittee indicates that this is inherent moisture and is not part of the ground water system. According to the Division, this would be considered water consumption. The MRP also lists that the mine discharges approximately 5544 ac-ft/year, so the coal moisture loss that they did not include would be negligible since the mine discharge considerably more than the consumption.

Riparian Vegetation of the East Fork of Box Canyon

A video was submitted to the Division as part of the 2008 annual report. The East Fork of Box Canyon was undermined in the winter of 2003-04. This qualitative evaluation commitment involves video taping the condition of the stream channel before and after undermining. The video included Dr. Pat Collins, botanist discussing vegetation changes and Erik Peterson, Hydrogeologist discussing hydrology changes due to mining and natural causes.

Overall, there were significant changes to vegetation and streambed substrate from storm events. Subsidence from mining altered the groundwater stream flow so that it seeped into the stream channel several hundred feet below where it did during premining conditions. Three of the springs toward the top of the channel were completely dry which eliminated the riparian vegetation. However, it was determined that much of the water seeped into new stream areas further downstream so that the water was still contributing to the channel and the overall groundwater system was not lost. Several cracks in the bedrock portions of the channel were present. Mining did alter the riparian vegetation and stream flow in the upper portion of the channel but not in the lower. The gain in vegetation in the lower channel could not be determined. The permittee is responsible for collaborating with the Division and the USFS to determine whether riparian habitat loss should be mitigated. Fencing of the North Water Springs area has been successful in keeping riparian vegetation from being overgrazed by cattle. However, the area fenced could be enlarged. Fencing could also be utilized downstream in the east fork of box canyon where riparian areas still exist or are becoming established.
A vegetation survey was also conducted on the riparian vegetation of box canyon. Data collected by Pat Collins of Mt. Nebo Scientific in the Main fork, an unmined portion, was used as Control data. Coal Mining occurred in this canyon in the Winter of 2003. 2008 was the last required sampling year for this area. A summary of the findings of all riparian zones for all sample periods was also submitted to the Division in with the October 2008 report. Quantitative and qualitative data were collected including photographs, Green line cover, Community type cover, and total cover.

Community cover and greenline methods were more conducive in noting changes in the riparian plant communities and therefore were emphasized in the discussion. The riparian communities in the upper reaches of E. Fork Box Canyon had fluctuated somewhat but remained constant overall. Dr. Collins also concluded that changes in total cover data fluctuated due to grazing practices rather than mining influences. The only major decreases in riparian area occurred on sites downstream of EFB-6. Dr. Collins concluded that abrupt decreases in the riparian community widths were most likely due to flooding in the area which eroded the banks in both the main and east fork of box canyon. Dr. Collins found that subsidence caused by mining could have caused several impacts including temporary stop of flow, mudflows, loss of riparian vegetation and elimination of springs. However, the springs naturally reestablished downstream according to the video submitted with the annual report.

Link Canyon Portal Vegetation Study

The most recent study is locatated in Appendix B of the 2008 annual report submitted to the Division in early 2009. The study was conducted on June 13, 2008, September 18, 2008 and November 16, 2008 of the Link Canyon Mine Portal area and prepared by Keith Zobell, Environmental Specialist. In June, at the west portal photo point area, it was found that 60% of the aerial willow (Salix spp.) stems have died since last year, which may be due to lack of moisture or winter kill. The condition of the vegetation at the east portal photo point was also very poor due to lack of water. Both sites were on a consistent downward trend in June. In the September report, the portal area underwent a significant flash flood in August 2008. The vegetation at the west portal area was destroyed. SUFCO reclaimed the area and seeded with the approved interim seed mix. In November, it was noted that some grasses were starting to germinate from the planted seedmix. The east portal area was completely dormant.

No water is currently being discharged from the mine portals. Page 3-19 of the MRP states that, "the discharges from the (Link canyon) portals will remain after the western Link Canyon Portal is reclaimed."
The Division conducted a site visit to this area on November 18, 2009. Mike Davis of SUFCO explained that once the portals are reclaimed, the discharge will continue. There was evidence that many willows planted by the mine had been wiped out from flooding. The topsoil pile had not been affected by the flood, and the few willows that were still rooted were beginning to resprout. Mr. Davis confirmed that the company would replant the willows upon final reclamation.

Pines Tract Vegetation

Page 3-22 of the MRP describes the permittee commitment to survey the Pines tract area, specifically for Link Canyon Columbines that are present in the drainage. The most recent and final report was submitted in Appendix B of the 2008 annual report. The study documented the vegetation in the Pines tract to determine if undermining has had an effect on the riparian areas within the tract and specifically on the Link Canyon Trail Columbine. Photographs were taken at established photo points and general vegetation growth, plant vigor and plant condition were documented. The area has undergone several years of low moisture, which has contributed to only fair overall plant growth and vigor in the tract. By looking at the pictures and descriptions, it appears that most of the sites have been affected by low moisture. Several sites have been heavily grazed and no columbines exist in these sites as a result. It seems it would be beneficial to fence these sites in the future.

Infrared photography

As stated on page 3-22c of the MRP, the permittee is required to conduct a color infrared survey of the East Fork of Box Canyon in 2003 and 2008. The permittee submitted infrared photographs to the Division in the 2008 Annual Report. The images were submitted electronically on a cd and included world files to correlate the images with the correct area using ArcMap. These photos should be compared to the photos taken in 2003 in order to monitor changes in vegetative communities. No analysis was submitted. The 2003 photos were submitted as a pdf file in the 2004 annual report. No world files were included. ***The permittee must submit an analysis of the change in vegetative communities between the 2003 and 2008 photos and submit the 2003 photos electronically with corresponding georeferencing files.***

Findings:

The information in the MRP is not considered adequate to meet the minimum regulatory requirements for this section. Prior to midterm approval, the Permittee must provide the following in accordance with:

R645-301-333: The Spring/seep and associated riparian vegetation loss in the East Fork of Box Canyon and the degradation of the Link Canyon Trail columbines in Pines Tract must be discussed with applicable agencies to determine if a mitigation plan should be developed and submitted to the Division for approval. (Mitigation could include fencing existing riparian areas to prevent overgrazing by cattle, see page 3-40 of the MRP).

R645-301-322.220 & 301-322: Color infrared photos were submitted to the Division in 2003 and 2008 annual reports. The 2003 photos do not have any associated georeferencing files (i.e. world files- .jgw) so that they can be compared to the 2008 photos. The permittee must submit an analysis of the two sets of photos to the Division that determines whether "substantiated mining-induced changes occurred in the vegetation within the affected areas of the East Fork of Box Canyon."

RECOMMENDATIONS:

This Midterm is not recommended for approval.