



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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August 12, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor 

FROM: Michael Sufflita, Senior Reclamation Hydrologist 

RE: Spring Diversion, Canyon Fuel Company, LLC, Skyline Mine, ACT/007/005-AM99C, Folder #2, Carbon County, Utah

## SUMMARY:

Proposed changes to Skyline Mine were received on June 16, 1999. These changes were to install a collection box and pipeline to convey natural spring water directly to a 48-inch culvert which runs under the coal storage pile and from there directly into Eccles Creek. The water presently flows under the coal pile and there is concern it can lead to spontaneous combustion in the pile. A second part of the submittal is to install two sediment collection basins to reduce sediment and coal fines accumulation in the sediment pond.

## TECHNICAL ANALYSIS:

## **OPERATION PLAN**

## **HYDROLOGIC INFORMATION**

Regulatory Reference: R645-301-742

### **Analysis:**

#### **Diversions**

Presently there is a spring flowing directly under the coal storage pile from a natural spring at the base of the hill North of the pile. With recent increased pile retention times, there is a concern that the wetted coal could spontaneously combust and start a fire. Vapors

and smoke have been observed. Therefore the Operator wants to develop the spring and convey the water in a 4-inch pipe a distance of 285-feet, to the 48-inch culvert that runs beneath the pile. The proposal is to dig a hole in the ground at the spring, fill it with 2-inch washed gravel and simply pipe the water away. While this method would work, it does not provide adequate protection from coal fines and sediment from being carried into the pipe and then directly into Eccles Creek. The design needs to incorporate a means to filter out fine material and prevent them from being carried into the pipe. One possible solution is to use geotextile filter fabrics around the assembly.

A second limitation is that the simple development box has no way to check and assure that coal fines and sediment are not being carried into the pipe. There needs to be a small, but sufficient catchment basin with enough detention time to trap any coal fines that enter the system. This could be located anywhere along the pipe. This assembly would also need a top to allow inspection and possible clean out. There may be a consideration of heavy equipment traveling over the assembly. The pipe appears to be adequately sized for the anticipated spring flows.

The spring water would naturally flow to Eccles Creek if the minesite were not there. The present flow through the coal pile and across the minesite degrades the water quality by adding coal fines and sediment which are later removed in the sediment pond. The proposed development box and pipeline would result in reduced sediment pond hydraulic and sediment loading. With a properly constructed box, the spring water would flow directly and cleanly into Eccles Creek. With the flow going into the culvert there was consideration to adding a new UPDES discharge point. However, since the pipe simply conveys a natural flow around or through the coal pile, this was deemed unnecessary. This judgement is based on the spring diversion system not picking up any coal fines or other pollutants from the disturbed area. Incidentally, there are other springs in the disturbed area which have this same diversion situation and have been previously approved. A call to Mike Herkimer of the Utah Department of Environmental Quality confirmed that this determination is appropriate.

The proposed reinforced concrete sediment traps should be a positive addition to the minesite. They are expected to trap a significant portion of the coal fines which presently flow into the sediment pond. These coal fines result from cleaning of the coal conveyor belt that runs the length of the minesite and are a major source of loading on the sediment pond. The sediment traps are much easier and less costly to clean out and are expected to improve sediment pond performance and reduce maintenance costs.

Both traps are 21-feet long with the one at the east end of the pond, designated Crusher Sediment Basin, being 6-feet wide and the one at the west end of the pond, designated Silo Sediment Basin, being 10-feet wide. Each has three, removable, 1-inch steel baffles to compartmentalize and slow the water to allow fine material to settle out. Overall sizing was based on a similar sediment basin located at the loadout of the mine. In the direction of flow,

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the first baffle has 23, 2-inch holes to allow water passage, the second baffle has a 1-foot wide, 8-inch deep notch on one side at the top and the third baffle has a similar notch on the opposite side. Removing the baffles facilitates cleanout of the basin.

The drawings are stamped by a Registered Professional Engineer. There is one deficiency on both of the basin drawings and that is the absence of any showing of how the water enters and exits the basins. Presumably this is via a surface ditch, but this needs to be shown. The amendment pages are clearly numbered showing where they are to be inserted into the Mining and Reclamation Plan.

**Findings:**

Information provided in the proposed amendment is not considered adequate to meet the requirement of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-742**, provide the means to filter out coal fines from entering the spring diversion and to trap any possible coal fines and allow inspection for effectiveness of the assembly, and indication on the drawings of the water entrance and exit for the sediment basins.

**RECOMMENDATION:**

Prior to approval, the requirements of R645-301-742 must provided as outlined above.

cc: Mike Herkimer, DEQ  
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