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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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TO: Internal File

FROM: James D. Smith, Reclamation Specialist, Team Lead *JDS*

RE: Proposed Underground Abandonment of Longwall Conveyor Pans, Canyon Fuel Company, LLC, Skyline Mine, C/007/005-AM01A

SUMMARY:

In a letter received March 6, 2001, Canyon Fuel Company informed the Division of the proposed underground abandonment of longwall pans in crosscuts and entries that currently provide access to longwall panels in the Skyline Mine. The pans will be removed from the face when mining of panel 8 Left A is completed, and new pans will be used on the next panel. The old pans have negligible scrap value, and the permittee considers that the very act of bringing these pans out of the mine would expose mine personnel to unnecessary risk of injury.

Overlying surface lands are mostly owned by the federal government and managed by the USFS. There are several small areas of fee acreage at the margins of the Skyline Mine permit area, but none of these overlie the proposed location for the abandoned equipment.

Utah Coal Mining Rules require a coal mine operator to demonstrate steps to be taken to minimize disturbance to the hydrologic balance within the permit and adjacent areas and to prevent material damage outside the permit area. The following is a brief evaluation by UDOGM of probable impacts to the hydrologic balance in the area from the abandonment of this equipment.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-300-730

ABANDONMENT OF MINING EQUIPMENT

Analysis:

UDOGM prepared a Cumulative Hydrologic Impact Assessment (CHIA) for Mud Creek and upper Huntington Creek basins, which includes the Skyline Mine, in 1995. Abandonment of equipment underground was not covered in this CHIA. Consequences from abandoned mining machinery and fluids were not included in the Probable Hydrologic Consequences (PHC) determination in the Skyline Mine MRP. The proposed amendmanet states on page 2-50 that the equipment is steel and therefore not too different from the steel used as roof support throughout the mine, and that contamination of ground water is not anticipated; the cover letter states that because of this, the permittee has not modified the PHC.

A considerable tonnage of ferrous materials - such as steel roof bolts, wire mesh, and cans used in support pillars - is routinely abandoned in underground coal mines because the materials cannot be removed without endangering the lives of miners. The amount of steel in the 120 conveyor pans is on the order of 100 to 200 tons, but this additional steel is probably not significant considering the amount routinely abandoned during underground mining operations during the life of a mine. At the Genwall Crandall Canyon Mine, room-and-pillar mining requires approximately 400 tons of steel be placed and abandoned underground to produce each million tons of coal; however, longwall mining, as at Skyline, would be expected to use steel at a considerably lower rate. (From 1996 to 1999, production at Skyline was on the order of 4 million tons/year.)

There are no lubricating fluids or hazardous materials in these pans.

Water encountered in the mine has little communication with the surface and is not subject to annual recharge events. UDOGM cannot determine whether or not it is likely that the areas where the pans are to be abandoned will be flooded.

Conditions in the abandoned areas of the mine are not conducive to oxidation or other chemical reactions:

- Recorded pH values for ground waters at the Skyline Mine range from 6.5 to 9.7, but are typically neutral to slightly alkaline;
- Oxygen would be absent or at low concentration both in the air and waters of the abandoned mine. Other oxidizing agents would not typically be found in an abandoned mine.
- The cool temperatures in the abandoned mine would tend to retard rather than accelerate most chemical reactions;

Assuming the mine were to flood and the abandoned equipment were to be covered with water, several probable results and impacts can be evaluated:

- Flooding of the abandoned mine might be relatively rapid, but once flooded, flow of ground water into, through, and out-of the void spaces of the mine should be slow;
- If steel or other metals in the conveyor pans were to oxidize, it would be at a very slow rate and the amount of iron and other metals added to the ground water at any one time would be very small;
- Oxides of most metals are insoluble or slightly soluble in water (anions in solution in the water could increase solubility, but this is not anticipated based on typical ground-water chemistries of the region), especially at temperatures expected in the mine, so once formed, metal oxides would tend to precipitate as solids within the mine rather than flow in solution in the ground water. If any metal were to go into solution, concentrations would be highest near the pans, but the volume of water in the flooded mine would dilute concentrations outside the immediate vicinity of the conveyor pans;
- Because of dilution and dispersion, natural seasonal fluctuations, and the limits of accuracy of analytical methods, changes in water quality would not be expected to be large enough to be detected at the surface at springs, ground-water baseflow to streams, or in discharges from the mine.

If the abandoned conveyor pans are not covered with water as the mine floods, the metals might oxidize at a faster rate. Even though possibly occurring over a shorter time period, the probable impacts would be negligible to nonexistent because there would be no water to convey the metal oxides to ground or surface waters.

Finding:

Abandoning the conveyor pans will cause minimal, if any, disturbance to the hydrologic balance within the permit and adjacent areas and is not expected to cause material damage outside the permit area, and therefore can be considered to have met minimum regulatory requirements.

RECOMMENDATION

The Division should approve abandonment of these conveyor pans. Monitoring of surface and ground waters should continue as stated in the Skyline Mine MRP.