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

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February 26, 1999

To: File

Thru: Daron Haddock, Permit Supervisor, Permitting
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From: Stephen J. Demczak, Senior Reclamation Specialist SJD
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RE: Begin Longwall Mine Operations, Canyon Fuel Company, LLC, Dugout Canyon Mine, ACT/007/039-99A, File #2, Carbon County, Utah

SUMMARY:

On February 3, 1999, the Division received Amendment 99A from the Dugout Mine. The amendment was forwarded to the Price Field Office on February 9, 1999. The Permittee proposes changing the MRP to include the longwall mining.

Technical Analysis:

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: R645-301-231, -301-523, -301-526, -301-528.

Analysis:

Type and Method of Mining Operations

The permittee met the minimum requirements of R645-301-523 by providing the Division with information and maps about the proposed mine plan. The permittee proposes to use longwall mining to extract most of the coal. Room-and-pillar mining will be used for development work, in areas that are not suitable for longwall methods and in areas that must be protected from subsidence.

Findings:

The permittee met the minimum requirements of this section.

COAL RECOVERY

Regulatory Reference: R645-301-522.

Analysis:

The Utah Coal Rules require that the mine layout is to prevent subsidence from occurring outside the permit boundary. The permittee used a 35° angle-of-draw to determine the subsidence boundaries. (Note: Plate 5-7 does show subsidence outside the permit boundary.)

An angle-of-draw of 35° is considered overly conservative by the Division. The Division usually assumes an angle-of-draw of 30° or less. See R645-301-525.542. Mine operators near the Dugout mine have measured the angle-of-draw to be between 0° to 22.5°. The Division allows mine operators in the area to use angles-of-draw from 15° to 22.5° when they calculate the subsidence boundaries.

While a large angle-of-draw will insure that subsidence does not occur outside the permit boundaries, the use of an overly conservative angle-of-draw can reduce coal recovery. The larger the angle-of-draw the further the mine workings must be from the permit boundary. The coal left between the workings and the permit boundary could and usually becomes unrecoverable.

R645-301-552 requires the permittee to maximize coal recovery. One way to increase coal recovery is to mine as close to the permit boundary as possible. Information in the MRP suggests that the distance between the mine workings and permit boundary could be decreased if a smaller angle-of-draw was used. Since the measured angle-of-draw in the area is below 22.5°, the Division finds that coal recovery can be increased by using a smaller angle-of-draw.

R645-301-525.542 requires the Division to assume an angle-of draw to be 30° unless the permittee shows that a different angle should be used. The Division originally allowed the permittee to use a 35° angle-of-draw because the mine plan could not be developed until development work and rehabilitation of the old mine workings had been completed. Now that the permittee has more information about the mining conditions they must decrease either the angle-of-draw or show that the 35° angle-of-draw is appropriate for this site.

Findings:

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

R645-301-522, The permittee must either show how maximum coal recovery can only be accomplished by using a 35° angle-of-draw or use a lesser angle-of-draw that is based on local conditions.

R645-301-525.542, The permittee must either use a 30° angle-of-draw or demonstrate why another angle-of-draw should be used. As noted above the Division believes that an angle-of-draw less than 30° should be used to in order to maximize coal recovery.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: R645-301-521, -301-525, -301-724.

Analysis:

Renewable resources survey.

Renewable resources and structures exist within the proposed subsidence area.

Subsidence control plan

The permittee's subsidence control plan outlines how structures and renewable resources will be protected as follows:

1. The permittee proposes using room-and-pillar mining to develop the mains, sub-mains and panel entries, and to extract coal in areas where surface features require protection and to extract coal in areas where geological conditions or physical boundaries are not suitable for longwall mining. Longwall mining will be used to extract large blocks of coal where the panels are more than 2,500 feet in length and where a suitable longwall panel can be laid out. The longwall panels have a different shape and orientation than the original room-and-pillar panels. The new mine plan changes the subsidence boundaries.

The permittee shows some longwall panels on Plate 5-7 that are questionable due to the coal's high sulfur or ash content. One proposed panel that is suspected of having high sulfur beneath Dugout Creek and has the potential to subside inside the disturbed area. The Division has concerns about the permittee subsiding areas beneath perennial streams and surface facilities.

The permittee does not show the location of buildings in the disturbed area that could be damaged by subsidence (water tanks, pipelines and explosive magazines). In addition, the permittee must show the location of State appropriated water supplies (Dugout Creek and related seeps and springs) and how subsidence could disrupt the water supply. See R64-301-525.100.

2. Plate 5-7 shows the areas where planned subsidence could occur. In Section 17 near the substation monitoring point (Sage AZ), the subsidence boundaries extend outside the permit boundaries.

3. The descriptions of the physical conditions, such as depth of cover, seam thickness, lithology that is in the approved MRP is considered adequate for the Division to determine the effects of subsidence if longwall mining is used.

4. On Page 5-30 of the clean copy submittal, the permittee states that each longwall panel will have a monitoring station. The location or anticipated location of each monitoring point must be shown on Plate 5-7.

5. The permittee must show how structures and renewable resources in the disturbed area such as the water tanks, pipelines, explosive magazines, and Dugout Creek will be protected from subsidence. See R645-301-525.450.

6. The permittee must describe the anticipated effects subsidence will have on the structures in the disturbed area and on Dugout Creek.

7. The permittee must state how they plan to mitigate subsidence damage to the structures in the disturbed area and to Dugout Creek.

Performance standards for subsidence control.

The permittee has committed to meet all subsidence performance standards.

Findings:

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

Regulatory Reference:

R645-301-525.100, the permittee must show the location of each structure and State appropriated water supply in the subsidence boundary. Those items include but are not limited to the water tanks, pipelines, and explosive magazines. An alternative is to remove the longwall panels with potentially high sulfur from the mine map. Should the permittee want to develop those panels later they can revise the mine plan and show how the structures and Dugout Creek will be protected from subsidence damage.

R645-301-141, the permittee must revise the mine plan to prevent subsidence from occurring outside the permit boundary. Plate 5-7 shows that subsidence will occur in Section 17 near the substation monitoring point (Sage AZ).

R645-301-525.440, the permittee must show the location or anticipated location of the subsidence monitoring station that will be placed over each longwall panel. See Page 5-30 of MRP.

R645-301-525.450, the permittee will describe the methods used to prevent subsidence damage to structures and renewable resources (water tanks, pipelines, explosive magazines, and Dugout Creek) in the area of planned subsidence.

R645-301-525.480, the permittee must show they will mitigate subsidence damage to structures and renewable resources (water tanks, pipelines, explosive magazines and Dugout Creek) in the area of planned subsidence.

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