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

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May 7, 1997

TO: File

THRU: Joseph Helfrich, Permit Supervisor 

FROM: David Darby, Hydrologist 

RE: Amendment Approval for Seeding Time to the Reclamation Schedule, Mountain Coal Company, Gordon Creek 2, 7 and 8 Mines, ACT/007/016-97A, Carbon County, Utah #2

**SUMMARY**

Mountain Coal Company submitted an amendment to their seeding schedule via Blackhawk Engineering on April 10, 1997. The amendment proposes to seed for reclamation as soon as possible after final site preparation, which could be as early as June.

This action tests standard requirements by the Division to reseed during the fall. Utah's climate can be dry and harsh on seedlings. Reseeding during the fall, in general, provides the optimal chance for revegetation of the minesite, because seeds receive the most dependable precipitation and experience the extended freeze thaw period required for some native species.

Mountain Coal Company has stated their awareness of the risks for early planting. They believe that the setting of the canyon provides sufficient protection and moisture throughout the summer to promote acceptable growth. They have committed to abide by the regulations governing seeding, mixture ratios and monitoring.

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### **Technical Analysis:**

## **Reclamation Plan**

Regulatory Reference: R645-301-300

### **Analysis:**

Susan White, DOGM Reclamation Specialist, reviewed the submittal and expressed the opinion that seeding during the fall season is the best option, because of the probability of better plant growth and survival success. The designated seed mixture is less likely to receive competition from the undesirable plant species for nutrients, which broadcast seeds and germinate during the summer and fall. Preparing the soil and planting the specified seed mixture during the fall provides a better situation for compatible temperatures, germination and root growth. Susan's and the Division's main concern is the unpredictable weather and the great potential for drought in the semi-arid climate that is conducive to the area could destroy young plants that germinate in the spring and/or summer.

Susan cites two references: Planting Guide for Utah, 1989, p. 5, which specifies a time of seeding. The text states that "seeding should take place in the spring or late fall", however, "Spring seedings are often unsuccessful because seeding is delayed by excessive soil moisture which often means that by the time equipment can be used on the sites, it is too late for optimum germination and establishment". On page 7 of Technical Paper 157 by the Soil Conservation Service, 1982, Plant Materials for Use on Surface-Mined Lands in Arid and Semiarid Regions, it is recommended that "the best time is just before the season receiving the most dependable precipitation beginnings" and "Dormant seedings of cool-season species for spring germination can be made late in fall or early winter when temperatures are Amendment cool for germination".

Susan also points out that if steps are not taken to maximize proper growth and diversity, delays and extra work could be realized by both the operator and the Division staff.

The operator has stated their awareness of value of planting during the fall, but points out that the canyon is not typical of the surrounding area exhibiting semiarid desert conditions. The canyon is more protected because of its steep canyon walls setting in relationship to the sun. The canyon retains more moisture as reflected by the amount of snow in the canyon later in the season than adjacent areas. The canyon also receives periodic rainstorms throughout the summer because of its elevation and setting.

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The operator has indicated that they are aware that the standards requiring proper growth and diversity are their responsibility, and they assume the risk and responsibility to ensure the standards will be met.

A fall planting is more desirable to the Division, however, since the operator has indicated their insistence on conducting a spring and/or summer planting and is aware of the drawbacks and responsibilities, the Division is able to approve the Amendment with the following conditions:

1. Prior to planting the operator must ensure the seed mix meets the testing requirements of the Utah Seed ACT (UCA 4-16-5). Grasses and legumes must be tested for viability every 18 months, while shrubs and forbes tested at 9 months. In the event of an unsuccessful revegetation operation at any given site the operator will not be allowed to replant without starting the bond Amendment period, unless selective husbandry practices necessitate reseed as described in R645-301-300.
2. If two continuous seasons yield poor revegetation success as a results of using approved sampling methods and statistical comparisons, as defined by meeting less than 70% of the success standards described in the permit and the regulations, then the site will have to be retilled, fertilized, and replanted.