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PRICE RIVER COAL COMPANY
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OCT 31 1983
DIVISION OF
OIL, GAS & MINING

October 26, 1983

Mr. Dave Maxwell
Office of Surface Mining
Brooks Towers
1020 - 15th Street
Denver, CO 80202

Re: Technical Analysis Revegetation Concerns

Dear Mr. Maxwell:

Please find enclosed the Price River Coal Company response to your recent concerns about our revegetation plan.

Sincerely yours,

PRICE RIVER COAL COMPANY

R. L. Wiley

Rob L. Wiley
Environmental Engineer

RLW:jp

Enclosure

cc: Lynn Kunzler, DOGM
K. B. Hutchinson, PRCC

PRICE RIVER COAL COMPANY RESPONSES TO OSM CONCERNS (LETTER DATED 10-5-83) REGARDING VEGETATION...

1. *The composition (i.e. proportion of each species) of the bulk seed mix and a commitment as to its use must be supplied. Because of the competitive nature of Chinese elm, Russian olive, and crested wheatgrass, these introduced species should be eliminated from all seed and planting mixes that will be used for permanent reclamation. Document that the species included in the seeding and planting mixes will provide for the establishment of a diverse community.*

The proportion of species within the bulk seed mix will be based on percentage by weight. The percentage of each species will be equal. We realize the relationship between seed size and number per unit of weight but do not view this as a problem. The bulk seed mix is included to enhance the species composition not to provide site stabilization and cover; that is the function of the primary planting and seeding mixes. We do not expect all included species in the bulk mix to be viable on all sites. We do hope that some of these will succeed on every site.

We have included this mix because we intend to use it. The "may" refers to species availability.

We will delete Russian olive, Chinese elm and crested wheatgrass from all permanent seed lists.

We do not know how to document the relationship of the seed mix(es) to diversity. Diversity is more a qualitative than quantitative factor related to the mix of different items within a unit of area. In plant communities diversity includes discussion of the number of different species (or growth habits) that make up a defined community; the metes and bounds of the community being somewhat arbitrary and involved with microclimate considerations.

The vegetation analyses at Price River Coal Company have not attempted to quantify diversity. (The diversity index is a dimensionless number.) We have merely listed species present at randomly sampled locations within defined and statistically adequate reference areas. We have not attempted to state that our lists are absolute or to make the determination that a given community (say pinon-juniper) <u>will</u> have 34 species present and another (say riparian?) 91 species.

It is not the intent of the reclamation program to physically replace the exact number of species per unit area but to make every effort to establish a group of species that can reasonably be expected to cover and hold the area. Using either the dictionary or strict botanical definition our seed and planting mixes are diverse. We have committed to using pure live seed rates for plantings and viable planting stock. We have chosen species that are native to the site or have been often successfully used throughout the west. We are using herbs, forbs, grasses, shrubs and trees. We have proposed methods for seeding and planting that provide good chances for survival. Should we properly implement our reclamation program, as proposed, we will have a diverse community by any reasonable definition of the term diverse.

2. *You have provided an extensive listing of tree and shrub species, most of which should be appropriate for revegetation purposes. A preferred species grouping or a prioritization of species is required, including numbers of each species to be used. Additionally, the density of species proposed seems rather low if initial shrub/tree densities are to be re-established. Please explain the reasoning for using such low woody material densities.*

We do not see the function of prioritizing lists of items which are, probably, equally appropriate. If the agencies feel prioritizing is important, then assume all lists are set up in order of priority; from top to bottom.

To determine number planted read minimum #/acre on all lists instead of maximum. Total number of seedlings planted per acre, per list is modified as follows:

| | | |
|---|---|---|
| List #1 | . . . . | 250/ac. |
| List #2 | . . . . | 150/ac. |
| List #3 | . . . . | 250/ac. |
| List #4 | . . . . | 50/ac. |

For discussion of stocking densities, see Tables 3.6 and 3.7, pp. 448 and 449 MRP.

Tree stocking in reference areas is rather low to start with. Stocking density per acre ranges from 17 to 384 with an average of 119 TPA. Our modified planting lists exceed the average for trees.

Shrub stocking is much higher, perhaps too high for the end use of most sites. Present stocking ranges from 162/ac. to 7,113/ac. with the average at 2,805/ac.

Comparing stocking densities shown on Table 3.6, p. 498 with productivity estimates provided by the Soil Conservation Service (SCS) on p. 511, an inverse relationship between stocking density and productivity can be perceived.

Productivity is related to the end primary use of the reclaimed land; grazing. Figures seem to indicate that a lessened shrub stocking density would, at least temporarily, provide increased range and forage capability. This thesis is reinforced by decades of range management techniques, within both the private and public land management sectors, which select against dense shrub stocking, through some rather extreme physical removal methods.

Price River Coal Company feels that lessened shrub stocking will help to achieve the stated goals of the Mining and Reclamation Act to return mined land to an equal or better condition.

3. *Your selection of reference areas as a technique against which to measure revegetation success necessitates that range condition be in fair or better condition on these reference areas for comparisons in determining revegetation success. A commitment to monitor or otherwise manage reference areas to achieve and maintain this goal must be included in the mine plan.*

We will monitor the reference areas at intervals of 3-5 years using the expertise of the local SCS office to determine condition of sites. Should problems arise, we will meet with DOGM and SCS to discuss and act upon improvement recommendations.

4. *Upon commencement of revegetation activities, it will be necessary to monitor vegetative development to demonstrate that revegetation is proceeding successfully. A monitoring program to provide information on revegetation trends is required for review and approval.*

We will monitor reclamation sites for cover, density and frequency during each of the first three years to determine if supplemental planting and seeding is needed. We will check again at 5 years, 7 years and 9 years. Analyses at these defined intervals will be through use of the same random sampling and statistical analysis techniques used in the original reference area sampling. Revegetation areas will be inspected, usually several times each year to generally identify problems.

5. *The operator needs to provide a commitment for obtaining productivity data using the same method for both reference areas and reclaimed areas.*

Be it so committed . . .