

Document Information Form

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Person N/A

Company N/A

Date Sent: N/A

Explanation:

REVEGETATION DOCUMENT

cc:

File in: C/007, 004, Incoming

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File Act 1007/1004
Folder #2
Cupps to SUG
Lynn

REVEGETATION

A. Description of the Existing Environment

The Price River Complex (PRC) is an existing mining operation where no further disturbance of vegetation is proposed for the 5 year permit term. Approximately 190 acres have been disturbed by mining activities prior to SMCRA, and 215 acres have been after SMCRA was enacted. Approximately 144 acres are associated with PRC mining operations. All surface mining operation facilities are located on lands owned by Price River Coal Company. Pre-mining land use was livestock grazing and wildlife habitat. Historically, these land uses have been replaced by coal mining.

PRC Mine area is characterized by mean annual precipitation of 13 inches, and 25 inches, the majority of precipitation occurring as snow in the winter. Temperatures average in the low 80's in the summer and the low teen's in the winter (Permit application Package (PAP), page 713).

Five of the six vegetation types that occurs in the mine plan area have been affected by mining activities. They are grasslands-sagebrush, mixed brush, conifers, pinyon-juniper, and riparian types. The sixth type, saltbush, has not been disturbed by mining activities.

The grassland-sagebrush type occupies steep dry slopes and lower drainages. The dominate species that occur in this type are big sagebrush (Artemisa tridentata), black sagebrush (Artemisa nova) and wheatgrasses (Agropyron spp.). Species composition consists of 2 sagebrush, 7 wheatgrasses, smooth brome, blue grama grass, muhly, Indian rice grass, 2 bluegrasses, needle-and-thread grass and approximately 50 forbs.

The mixed brush type occurs in relatively moist sites and maintains highly variable species compositions. The most common shrub species in this type are scrub oak (Quercus gambelii), snowberry (Symphoricarpos occidentalis), and sagebrush (Artemisia tridentata). This type includes approximately 17 grass species, 71 forbs, 2 succulents, and 32 shrubs and subshrubs.

The pinyon-juniper type is generally found on dry, rocky slopes and flats. The dominant species are pinyon pine (Pinus edulis) and Utah juniper (Juniperus osteosperma). The type is accompanied by other species including mountain mahogany (Cercocarpus ledifolius), scrub oak, sagebrush, rabbitbrush (Chrysothamnus nauseosus and C. viscidiflorus), and wheatgrasses.

The riparian bottoms include approximately 9' This type is either characterized by the pre (Populus augustifolia) or open grasslands. includes an abundance of grasses, rushes, se and shrubs.

File in:
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The riparian bottoms include approximately 91 plant species. This type is either characterized by the presence of cottonwoods (Populus augustifolia) or open grasslands. Species composition includes an abundance of grasses, rushes, sedges, forbs, trees, and shrubs.

The coniferous forest type generally occurs at higher elevations on north facing slopes and in some of the moister drainages in the permit area. The dominant tree in this type is Douglas fir (Pseudotsuga menziesii). The type also includes Utah juniper, Ponderosa pine (Pinus ponderosa), subalpine fir (Abies lasiocarpa), and white fir (Abies concolor). Ground cover in this type varies inversely with forest density.

Saltbush (Atriplex canescens) and grease wood (Sarcobatus vermiculatus) dominate the saltbush type. This type is the smallest of the six vegetation types (5 acres). Some areas are dominated by Russian thistle (Salsola kali), summer cypress (Kochia scoparia), convolvulus (Convolvulus arvensis), and rabbitbrush.

No threatened or endangered plant species were identified within the proposed permit area (See U.S. Fish And Wildlife Service, Endangered Species Section's Memorandum dated September 13, 1983).

B. Description of the Applicant's Proposal

Price River Coal Company (PRCC) proposes to establish on lands presently affected by mining operations, except on permanent road surfaces, an effective and permanent vegetative cover of the same seasonal variety as exist in adjacent areas (i.e. Barn Canyon). Revegetation will be conducted in a manner that assures a prompt vegetation cover, capable of stabilizing soil erosion and recovery of production levels to established success standards.

The proposed permit area encompasses approximately 144 acres of disturbed land. Approximately 121 acres of this disturbed area will be revegetated. The remaining 23 acres consist of permanent road surface.

The majority of disturbance has occurred prior to any vegetation sampling. However, vegetation was sampled in Barn Canyon prior to mining disturbance. Sample adequacy was achieved for all parameters with the exception of production (PAP, Table 3.2, page 493). Production was not measured, instead production estimates were obtained from the Soil Conservation Service (SCS) for all vegetation types. Vegetative cover values were not significantly different ($t = 0.05$) on all reference areas from corresponding affected areas in Barn Canyon (PAP, Table 3.4, page 495). Vegetative similarity indices were 50 percent or greater. Reference areas for sites previously disturbed have been chosen on a subjective basis but are felt to be representative of the areas disturbed. The applicant will monitor reference areas at three to five year intervals. Site conditions will be evaluated by the local SCS office, should problems arise, the applicant will discuss and act upon improvement recommendations made by Utah Division of Oil Gas and Mining (DOGMA) and SCS (Price River Coal Company (PRCC) letter dated October 26, 1983).

Three seed mixes have been proposed for different situations in the permit area. The applicant provides a seed mixture along with possible variants for; topsoil stockpiles; moist sites and north facing slopes; and dry sites, south facing slopes, roadways, and spoil areas (PAP, Tables 9-2-1 thru 9-2-3, pages 535, 537, and 540, respectively and PRCC letter dated October 26, 1983). These seed mixtures contain greater than 25%, by pure live seed, highly competitive introduced species. However, the applicant states that the introduced species are suitable to the permit area due to their adaptability and historic use at other western coal mines. Ten introduced plant species have been proposed by the applicant. They are as follows:

<u>Poa compressa</u>	Canada bluegrass
<u>Agropyron intermedium</u>	intermediate wheatgrass
<u>Melilotus officinalis</u>	yellow sweetclover
<u>Melilotus alba</u>	white sweetclover
<u>Dactylis glomerata</u>	orchard grass
<u>Astragalus cicer</u>	chickpea (cicer) milkvetch
<u>Festuca arundinacea</u>	tall fescue
<u>Phleum pratense</u>	common timothy
<u>Agropyron elongatum</u>	tall wheatgrass
<u>Medicago sativa</u>	alfalfa medic

(PAP, page 532 and PRCC letters dated October 26, 1983 and January 27, 1984). The proposed introduced species are not poisonous or noxious weed species.

The applicant has also proposed the use of native plant materials which are contained in seed mixes 2 and 3 (PAP, Tables 9-2-2 and 9-2-3, pages 537 and 540) and supplemented by a bulk seed mix (PAP, Table 9-2-4, page 542). Species composition of the final mix will be limited by availability and substitutions will be made from the bulk seed mix if necessary. The bulk seed mix includes over 60 trees, shrubs and forbs. The proportion of species within the bulk mix will be based on percentage by weight with the percentage of each species being equal (PRCC letter dated October 26, 1983).

Four plant lists (PAP, Tables 9-2-6 thru 9-2-9, pages 546 thru 549) have been provided for shrub and tree plantings. The species listed are generally appropriate providing they are planted in suitable locations. The applicant has proposed that a minimum of three shrub and two tree species be planted at a minimum density of 400 species per acre on moist sites and that a minimum of five shrub and two tree species be planted on dry sites at a minimum density of 300 individuals per acre (PRCC letters dated October 26, 1983 and January 27, 1984).

Seeding and planting will take place during the first fall planting season after topsoiling. Topsoil replaced in the spring will be seeded with a cover crop of cereal grain and grasses to

protect topsoil from eroding during the summer months. Topsoil replaced in late summer and areas seeded with a cover crop will be seeded with seed mixes #2, and #3. Cover crops will be mowed after seeding and used as a mulch. The mulch will be crimped where slopes allow and a tackifier will be used on steeper slopes. Straw/hay mulch would be applied at rates of 2 to 3 tons per acre when cover crops are not used (PAP, page 530). Seed mixtures will be seeded at a rate between 25 and 30 lbs/acre (PAP, page 533 and PRCC letter dated October 26, 1983).

The applicant will monitor reclaimed sites for cover, density, and frequency during each of the first three years and in subsequent odd numbered years to determine if supplemental planting and seeding are needed. Analyses will be obtained using the same sampling and statistical techniques used in collecting baseline data (PAP, page 554 and PRCC letter dated October 26, 1983). Revegetation areas will be inspected several times each year to identify any problems.

C. Determination of Compliance

The applicant has provided adequate baseline information and a revegetation plan for the Price River Complex (UMC 783.19, 784.13, and 817.111). The revegetation plan has been prepared which provides information on the utility of native and introduced species (UMC 817.112), planting and seeding rates and methods (UMC 817.113), revegetation timing (UMC 817.113), and mulching practices (UMC 817.114). Reference areas have been established and a commitment has been made by the PRCC to maintain and monitor these areas in fair condition for evaluation of revegetation success (UMC 817.116 and 817.117).

D. Stipulations with Justification

None.

E. Summary of Compliance

The applicant will be in compliance with all regulatory requirements pertaining to revegetation.

F. Proposed Departmental Action

Approval of this section of the mining and reclamation plan.

G. Environmental Impacts of the Proposed Departmental Action

The Price River Mine Complex is an existing operation. No additional surface disturbances will result from approval of the proposed operation during the permit term. Approval of this permit will allow the reclamation of the disturbed sites once mining is complete. This would have the effect of enhancing the land use for grazing and wildlife, and stabilize surfaces that do

not currently have any vegetation growing due to use of the area for mining.

H. Alternatives to the Proposed Action

There are no technically viable alternatives to the proposed revegetation plan.