



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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November 29, 1988

Mr. George Morris, Forest Supervisor  
U.S. Forest Service  
Manti LaSal National Forest  
599 West Price River Road  
Price Utah 84501

Dear Mr. Morris:

RE: Revegetation Seed Mix, Genwal Coal Company, Crandall Canyon Mine, ACT/015/032, Folder #2, Emery County, Utah

As discussed with your staff on the phone, the Division has revised the proposed seed mixes for the above referenced mine. Reasons for the revision include the fact that the latest MRP submittal from the company contained revisions to the previously approved mixes and since the Genwal site is so small, it was felt that only one mix would be appropriate and necessary instead of the previous four mixes, with a tree planting supplement for the wooded and riparian areas.

The enclosed seed mix will be used for all future revegetation, including interim or temporary stabilization (the tree supplement will only be used for final revegetation). Monitoring of revegetated sites will identify any problems and the seed mix will be modified as conditions warrant, with Forest Service concurrence.

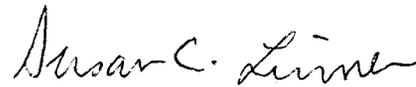
The enclosed mix was developed by the Division's Reclamation Biologist, giving consideration to the previously approved and implemented mixes and the Manti LaSal Forest recommendations. The mix was discussed with Mr. Bob Thompson for his concurrence. While the species remain the same as discussed with Mr. Thompson, the Division altered the rates on 3 grass species and the tree planting list. The reasons for these changes is that the Division's evaluation of what was discussed with Mr. Thompson will not meet the requirements of establishing a diverse and effective plant cover, consistent with the postmining land use of wildlife habitat and grazing. The tree planting supplement is what the Forest Service had originally required, consistent with our requirements for revegetating forested areas. While the Division realizes that some

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trees and shrubs may re-invade the disturbed areas, we have no assurances that sufficient quantities of individuals will do so to meet density requirements. Therefore, the planting plan must be designed to establish the required density assuming that there will be no natural establishment. Finally, the Division believes that direct seeding is a viable option for establishing shrubs and cannot require a company to use transplants (which is usually more costly) to establish shrubs without an on-site demonstration that shrubs will not establish from direct seeding. Therefore, the Division has substituted the suggested shrub stocking density with the previously approved seeding rates.

The Division has appreciated the Forest's comments and concerns. We hope that the enclosed seeding plan can be accepted by the Forest Service. If you need additional clarification as to why changes were made, Please don't hesitate to call Reclamation Biologist Lynn Kunzler or myself.

Sincerely,



Susan C. Linner  
Permit Supervisor

Enclosure  
cc: Carter Reed  
    J. Leatherwood  
    L. Kunzler  
WP49/58-59

Recommended Seed Mix  
 Genwal Coal Company  
 Crandall Canyon Mine  
 ACT/015/032  
 November 28, 1988

<u>Species</u>	<u>Rate*</u> <u>Lbs/Acre</u>
<u>GRASSES &amp; FORBS:</u>	
<u>Agropyron dasystachum</u> Thickspike wheatgrass	3.0
<u>Agroypron smithii</u> Western wheatgrass	3.0
<u>Agropyron spicatum</u> Bluebunch wheatgrass	2.0
<u>Agropyron trachycaulum</u> Slender wheatgrass	3.0
<u>Bromus caranatus (marginatus)</u> Mountain brome	3.0
<u>Dactylis glomerata</u> Orchard grass	0.5
<u>Elymus cinereus</u> Great Basin wildrye	2.0
<u>Aster glaucoides</u> Blueleaf aster	0.5
<u>Linum lewisii</u> Lewis flax	1.0
<u>Melilotus officinalis</u> Yellow sweetclover	1.0
<u>Penstemon palmeri</u> Palmer penstemon	0.5
TOTAL . . . . .	<u>19.5</u>
<u>SHRUBS:</u>	
<u>Symphoricarpos oreophilus</u> Snowberry	2.0
<u>Rosa woodsii</u> Woods rose	1.0
<u>Amelanchier utahensis</u> Utah serviceberry	1.0
<u>Rhus trilobata</u> Squawbush	1.0
<u>Sambucus cerulea</u> Blue elderberry	1.0
<u>Cercocarpus ledifolius</u> Curlleaf mtn. mahogany	1.0
TOTAL . . . . .	<u>7.0</u>

\*Rate is for Pure Live Seed (PLS) to be broadcast seeded over all disturbed area. For best results, lightly rake areas that have been seeded.

Recommended Planting Mix\*  
Genwal Coal Company  
Crandall Canyon Mine  
ACT/015/032  
November 28, 1988

<u>Species</u>	<u>Plants/Acre</u>
<u>TREES:</u>	
<u>Picea englemanii</u> Engleman spruce	150
<u>Pseudotsuga menziesii</u> Douglas fir	150
<u>Pinus Ponderosa</u> Ponderosa pine	50
<u>Populus angustifolia</u> Cottonwood	75
<u>Populus tremuloides</u> Quaking aspen	75
<u>Salix myrtifolia</u> Willow	110
TOTAL . . . . .	<u>610</u>

\*Planting mix will be planted on the wooded area. The willows will be planted within 20 feet of drainages to assure sufficient moisture for establishment and growth.