ACT/007/012

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KAISER COAL

KAISER COAL CORPORATION
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RECEIVED
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DIVISION OF
OIL, GAS & MINING

October 24, 1986

Susan Linner
Permit Supervisor
State of Utah Natural Resources
Oil, Gas and Mining
355 W. North Temple
3 Triad Center, Ste. 350
Salt Lake City, UT 84180-1203

RE: Temporary seed mixes for use at Wellington Coal Cleaning Plant

Dear Ms. Linner:

Approximately 8 acres need to be temporarily reclaimed at the Wellington Coal Cleaning Plant in 1986. Kaiser has expended considerable effort in researching the best technical approach and working towards resolving issues related to the composition and seeding rates of a temporary seed mix. At this time the primary issue, that of utilizing Ephraim crested wheatgrass in the seed mix, is unresolved. Kaiser requests that the proposed seed mix discussed in this submittal be approved for site stabilization.

Kaiser has had several conversations with Lynn Kunzler, DOGM (10/6/86, 10/17/86), concerning proposed seed mixes for the Wellington site. These conversations have been primarily directed towards resolution of the species composition for the mix.

All of the plant species that are proposed, with the exception of the Ephraim crested heatgrass, have been approved by the DOGM for use in the temporary seed mix in the drill rates proposed. Ephraim crested wheatgrass has been approved, but has been recommended at a rate not to exceed 1 to 2 PLS lbs/ac. Kaiser proposes that Ephraim be used in a mix not to exceed 25% of the mix at a rate of 2.7 PLS lbs/ac drilled.

The current status of reclamation at the Wellington Coal Cleaning Plant may be summarized as follows:

- Areas to be reclaimed have been previously disturbed, erosion is occuring on some sites, and stabilization is required.

- Site stabilization is Kaiser's first priority in accordance with Utah regulations and guidelines concerning temporary reclamation.

- Kaiser has been informed that NOV's will be issued if stabilization of these sites is not conducted.

- The site is harsh consisting of saline, sodic, heavy soils; precipitation is 8 to 10 inches/yr; with very hot summers and very cold winter seasons. Reclamation is acknowledged to be difficult.

- US Steel has used a minimum of 27 plant species in a number of attempts, including test plots, to establish vegetation; these reclamation attempts have met with little to no success.

- The only species that has consistently performed well at Wellington is crested wheatgrass, which is located at least two sites--including the Sauerman Dragline.

- Kaiser requests that DOGM allow planting a small amount of Ephraim crested wheatgrass in a diverse, and otherwise largely native seed mix in order to stabilize the sites.

- Ephraim crested wheatgrass is known to establish in difficult conditions, to effectively stabilize sites, and to control erosion.

- Kaiser continues to commit to monitoring reclaimed areas for species performance, and to seek a solution to acknowleged difficulties in achieving permanent reclamation success.

The proposed seed mix is as follows:

Species	% Mix	Drill (PLS/ac)	Broadcast (PLS/ac)
Ephraim crested	25	2.7	4.0
Russian wildrye	15	1.9	2.8
Squirreltail	5	0.5	0.8
Indian ricegrass	10	1.6	2.3
Sodar streambank	10	1.4	2.0
Slender wheatgrass	15	2.0	3.0
Fourwing saltbush	5	2.0	3.0
Yellow sweetclover	5	0.4	0.6
Prostrate kochia	5	1.0	2.0
Gardner saltbush	5	1.0	1.5
Total		14.5	22.0

It should be noted that these seeding rates have been recommended by the SCS in Price, Upper Colorado Plant Materials Center, Los Lunas Plant Materials Center, SCS Seeding Guides for Utah,

and others.

The following section identifies DOGM's apparent concerns regarding Ephraim crested wheatgrass, and Kaiser's responses to those concerns. These responses are based on current literature and on interviews with reclamation specialists. A list of personnel contacted and a selected bibliography is contained in Attachment 1. In addition, the SCS in Price has composed a recommended seeding mix for use at the Wellington site based on their experience in the area (Attachment 1).

ISSUE:
DOGM is concerned that stands of crested wheatgrass may develop into monocultures.

RESPONSE:

- Results of research and field trials conducted with Ephraim crested wheatgrass have demonstrated that under the extreme environmental conditions present at Wellington, Ephraim will not perform aggressively, and is unlikely to form a monoculture.

- Monocultures of crested wheatgrass are formed when crested wheatgrass is seeded as a single species. When crested wheatgrass is seeded in a mixture, monocultures are not formed.

- Conclusions concerning development of monocultures have resulted from research conducted with other varieties of crested wheatgrass. Research has indicated that Ephraim will not respond in precisely the same manner as other crested varieties.

- Virtual monocultures are approved by the regulatory agency for temporary reclamation when only 3 to 4 species are allowed in a mix. Diversity is an issue only where permanent reclamation is concerned.

ISSUE
DOGM is concerned that crested wheatgrass is unpalatable except for a limited time in the spring.

RESPONSE

- Ephraim stays greener for a longer period of time in the spring than other crested varieties, therby allowing increased duration of grazing.

- Grazing studies conducted by the Utah Shrub Lab have demonstrated that Ephraim is considerably more palatable than other varieties of crested wheatgrass.

- Kaiser does not intend to permit grazing, and indeed will not allow grazing to be conducted on any reclaimed sites at Wellington. Species palatability, therefore is of no concern at this time.

ISSUE
DOGM is concerned that crested wheatgrass is persistent after it becomes established.

RESPONSE

- Final reclamation will involve regrading, recountouring, and other substantial earth moving activities which will preclude the ultimate survival of this species in permanently reclaimed areas.

- Ephraim crested wheatgrass can be easily controlled with a light application of an herbicide such as "Round-up". Kaiser has committed to monitoring species performance, and if necessary to control the presence of this species by the use of herbicide or by other mechanical means.

Kaiser requests that the proposed seed mix be approved for the following reasons:

- Both the plant species and the seeding rates at which they have been proposed are known to effectively control erosion on steep slopes and on poor soils.

- Kaiser wishes to continue testing species performance at Wellington while complying with regulatory requirements. Site specific field evaluations of reclamation success will be conducted by Kaiser.

We sincerely appreciate your timely assistance and cooperation in approving this temporary seed mix to be used for site stabilization and temporary reclamation at the Wellington Coal Cleaning Plant. Kaiser plans to complete reclamation activities as soon as practicable in early November, 1986.

Sincerely,

Doug Pearce
Mining Engineer

cc: R. Wiley
M. Holmes
S. Hasenjager

ATTACHMENT 1

LIST OF RECLAMATION SPECIALIST CONTACTS

Wendell Oaks
Manager Plant Materials Center
Los Lunas, New Mexico

Sam Stranathan
Manager Upper Colorado Plant Materials Center
Meeker, Colorado

John Olson
General Manager, Director of Reclamation
Antelope Coal, Nerco
Douglas, Wyoming

Mike Coats
Reclamation Biologist
York Canyon Mine
Raton, New Mexico

Marcia Wolfe
Manager of Reclamation
Bechtel Corporation
Bakersfield, California

Larry Kline
Office of Surface Mining
Denver, Colorado

Ray Austin
Reclamation Biologist
Montana Dept. State Lands
Helena, MT

Page Smith
Reclamation Biologist, Range Scientist
Wyoming Dept. Environmental Quality
Cheyenne, WY

Jack Smith
Reclamation Biologist, Range Scientist
Wyoming Dept. Environmental Quality
Cheyenne, WY

Wendell Hassell
SCS Plant Materials Specialist
Denver, CO

Gary Noler
Plant Materials Specialist
Upper Colorado Plant Materials Center
Meeker, CO

Richard Stevens
Utah Div. of Wildlife
Ephraim, Ut

Stan Young
Plant Services Department
Logan, UT

Scott Ferguson
Range Conservationist
Soil Conservation Service
Price, Utah

George Cook
Range Conservationist
Soil Conservation Service
Price, UT

Jacy Gibbs
Plant Materials Specialist
Soil Conservation Service
Boise, ID

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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
350 N. 4th E. Price, UT. 84501

October 20, 1986

Ms. Susan Hasenjager
Sunnyside Mines
Sunnyside, UT. 84539

Dear Ms. Hasenjager:

This letter is in response to your request for reclamation seeding mixes and rates. All rates are in Pure Live Seed, drilled.

Wellington-Washer Site (app. 10 in. annual precipitation)

Siberian Wheatgrass	2	lbs.	per	acre
Fairway Crested Wheatgrass	2	"	"	"
Ephriam Crested Wheatgrass	2	"	"	"
Indian Ricegrass	2	"	"	"
Russian Wildrye	2	"	"	"
Penstemon	1	"	"	"
Yellow Sweetclover	½	"	"	"
Fourwing Saltbush	2	"	"	"
	13½	total lbs. per acre		

Pinyon-Juniper Site (app. 12 in. annual precipitation)

All the above, with the addition of 'Appar' Lewis FLax at 1 lb. per acre. From your description of the site, it sounds marginal for 'Delar'Small Burnet, but you could try it at 2 lbs. per acre.

Please give me a call if you need any further assistance.

Scott E. Ferguson

Scott E. Ferguson
Range Conservationist, SCS, Price, UT.

cc: Keith Beardall, District Conservationist, SCS, Price, UT.