STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
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September 14, 1983

Mr. F. G. McFarland and
Mr. S. R. Hullinger
McFarland and Hullinger
P. O. Box 238
Tooele, Utah 84074

RE: Reclamation Recommendations
Crystal Mine
ACT/045/010
Tooele County, Utah

Gentlemen:

As a result of our office visit and Field tour of August 25, 1983 the Division of Oil, Gas and Mining wishes to make some reclamation recommendations. As you will recall approval for the Crystal Mine based on a Form MR-2 was conveyed from this office in a March 5, 1980 approval letter. Following our on-site consultation more specific suggestions can now be given.

Division recommendations will be in the following areas:

1. Seed Mix suited to on-site conditions -- based on on-site visit
2. Soil Redistribution --- based on on-site visit
3. Soil amendment -- based on soils data received by DOGM on August 11, 1983.

REVISED SEED MIX

1.

COMMON NAME	SCIENTIFIC NAME	lbs/Acre
Thickspike wheatgrass	Agropyron dasytachyum	2.0
Western Wheatgrass	A. smithii	2.0
Slender Wheatgrass	A. trachycanlum	2.0
Basin Wildrye	Elymus cinereus	3.0
Green needlegrass	Stipa viridula	1.0
Yellow Sweetclover	Melilotus officinalis	1.0
Palmer penstemon	Penstemon palmeri	.5
Gooseberry leaf Globemallow	Spaeralcea grossulariaefolia	.5
Rubber rabbitbrush	Chrysothamnus nauseosus	.5
Antelope bitterbrush	Purshia tridentata	3.0
Four-winged saltbush	Atriplex canescens	2.0

2. There is a distinct lack of stockpiled topsoil and available alluvial fan material to be used as soil substitute material. Also, the grading activities done at the minesite has partially incorporated much of the available alluvial fan material into the surface of the regraded area. Thus it is important to get the most economical use of that topsoil substitute material that is available. In light of this, a redistribution method which will be most effective is one which replaces available soils in a "patchy" grid. By doing this patches of well vegetated areas will occur on the landscape. As soil washes down from above and the surface weathers these patches will act as a seed source and facilitate more complete reclamation over time.

3. Soil Fertility amendments are necessary. Approximately 40 lbs per acre of Nitrogen should be applied along with 30 lbs/acre of Phosphorus. By giving 150 lbs of diammonium phosphate (21% P) this level of P will be attained as well as ample nitrogen. Potassium is adequate.

4. Providing a good Alfalfa hay mulch will greatly assist in reclamation if worked into the soil. More organic matter will be provided, the soil will hold more water and the soil microbial activity will be enhanced.

Please keep us posted on your plans for reclamation. If you have any questions or if we can assist you in any way please do not hesitate to call on us.

Sincerely,

Thomas L. Portle

THOMAS L. PORTLE
RECLAMATION SOILS SPECIALIST

cc: Jim Smith, DOGM
Sue Linner, DOGM
Steve Cox, DOGM
Pam Graubaugh-Littig, DOGM
Mary Boucek, DOGM