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DIVISION OF OIL
GAS & MINING

ACT/007/007
#2

January 20, 1986

Ms. Kathryn Mutz
State of Utah Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Ms. Mutz:

The purpose of this letter is to describe the final "as-built" configuration of the Sunnyside Mines coarse refuse reclamation test plot. The original purpose and design of the experimental revegetation plots on coarse refuse are described in detail in Appendix III-7 of the Sunnyside Mines permit application. Some minor modifications were necessary due to heavy equipment limitations, and due to recent information concerning plant species establishment on reclaimed lands. These modifications were discussed with and approved by Lynn Kunzler, DOGM, prior to implementation (letter to DOGM, August 28, 1985; letter from DOGM, September 9, 1985). Per Mr. Kunzler's request, the final "as-built" test plot design is submitted to the Division in this document.

Attachment A is a copy of the engineering specifications of the plot used by the surveyors and contractor during plot construction.

Plant species that were selected for testing are as follows:

Grasses

<u>Agropyron cristatum</u>	Agcr	Ephram Crested Wheatgrass
<u>Agropyron riparium</u>	Agri	Sodar Streambank Wheatgrass
<u>Agropyron smithii</u>	Agsm	Arriba Western Wheatgrass
<u>Agropyron spicatum</u>	Agsp	Secar Bluebunch Wheatgrass
<u>Elymus cinereus</u>	Elci	Magnar Basin Wildrye
<u>Elymus salina</u>	Elsa	Salina Wildrye
<u>Oryzopsis hymenoides</u>	Orhy	Nezpar Indian Ricegrass
<u>Poa secunda</u>	Pose	Sandberg Bluegrass
<u>Stipa comata</u>	Stco	Needle-and-threadgrass

Forbs

<u>Hedysarum boreale</u>	Hebo	Utah Sweetvetch
<u>Penstemon strictus</u>	Pest	Bandera Rocky Mt. Penstemon
<u>Linum lewisii</u>	Lile	Apar Lewis Flax

Shrubs

<u>Artemesia ludoviciana</u>	Arlu	Louisiana Sagewort
<u>Artemesia tridentata</u>	Arva	Hobble Creek Sagebrush
var. <u>vaseyana</u>		
<u>Atriplex canescens</u>	Atca	Rincon Fourwing Saltbush
<u>Kochia prostrata</u>	Kopr	Emmigrant Kochia
<u>Ribes aureum</u>	Riau	Golden Gooseberry

Trees

<u>Juniperus osteosperma</u>	Juos	Utah Juniper
<u>Pinus edulis</u>	Pied	Pinyon Pine

The plant species were selected based on the most recent information available concerning species establishment on acid producing spoil and on reclaimed lands. All seed material was obtained from either the Upper Colorado Plant Materials Center in Meeker, or purchased from Native Plants. The Elymus cinereus was obtained from a local collection. Species were seeded by the Upper Colorado Plant Materials Center personnel, at approximately 25 pls/linear foot of row.

Rows were randomly established by life form within each block. That is, each tested species row within block 1 were randomly placed for each replication. Information concerning this placement of rows is contained in Attachment B to this letter. Guard rows, shown in Attachment B, were seeded with a sterile wheatgrass (Hybredtech 2), which will probably act as an annual. The purpose of the guard row is to provide a buffer between the native materials and outside seed sources, and for ease of evaluation for the materials being tested.

Tree species will be planted in the spring, 1986, using tubelings. The trees will be planted in two rows with seven seedlings of each species per subplot, and eighty-four seedlings per block, as described in the original test plot plan (Appendix III-7).

Evaluation of the test plot will be conducted this year according to methods proposed in the original test plot description in Appendix III-7 of the Sunnyside Mines permit application.

If you have any questions concerning the Sunnyside experimental revegetation plot on coarse refuse, please feel free to contact either Doug Pearce or myself.

Sincerely,

A handwritten signature in cursive script that reads "Susan Hasenjager". The signature is written in dark ink and is positioned above the typed name.

Susan D. Hasenjager
Environmental/Permitting
Consultant

ATTACHMENT B

Plant species rows as planted in the Sunnyside Mines revegetation plot on coarse refuse. Rows are listed in the order in which they were planted. Rows were seeded starting near the gate shown on the blueprint in the lower left corner of the Plan View (Attachment A). The survey line, or starting line for each block is equivalent to "0", and the distance between the rows is given for each row as follows. Species are listed below using the four letter code given for plant species described in the body of the letter.

BLOCK 3

<u>Foot</u>	<u>Species</u>
0	guard row
2	Riau
4	Kopr
6	Arva
8	Arlu
10	Atca
12	guard row
13	Hebo
14	Lile
15	Pest
16	guard row
17.5	Agsm
19	Orhy
20.5	Elsa
22	Stco
23.5	Agri
25	Pose
26.5	Agsp
28	Elci
29.5	Agcr
31	guard row
33	Arva
35	Arlu
37	Atca
39	Riau
41	Kopr
43	guard row
44.5	Stco
46	Agri
47.5	Agsp
49	Elsa
50.5	Orhy
52	Agcr
53.5	Agsm
55	Elci
56.5	Pose
58	guard row

59	Pest
60	Lile
61	Hebo
62	guard row
63	Hebo
64	Pest
65	Lile
66	guard row
68	Arlu
70	Atca
72	Arva
74	Kopr
76	Riau
78	Juos
80	Pied
81.5	Agsp
83	Stco
84.5	Agri
86	Elci
87.5	Elsa
89	Pose
90.5	Agcr
92	Orhy
93.4	Agsm
95	guard row

BLOCK 2

0	guard row
2	Arva
4	Riau
6	Kopr
8	Atca
10	Arlu
12	guard row
13	Lile
14	Hebo
15	Pest
16	guard row
17.5	Elci
19	Stco
20.5	Agcr
22	Elsa
23.5	Agri
25	Agsm
26.5	Pose
28	Orhy
29.5	Agsp
31	guard row
33	Arlu
35	Atca
37	Arva

39	Kopr
41	Riau
43	guard row
44.5	Agsp
46	Stco
47.5	Agri
49	Elci
50.5	Elsa
52	Pose
53.5	Agcr
55	Orhy
56.5	Agsm
58	guard row
59	Hebo
60	Pest
61	Lile
62	guard row
63	Lile
64	Hebo
65	Pest
66	guard row
67.5	Agri
69	Stco
70.5	Pose
72	Elci
73.5	Agsm
75	Agcr
76.5	Elsa
78	Orhy
79.5	Agsp
81	Juos
83	Pied
85	Riau
87	Arlu
89	Kopr
91	Atca
93	Arva
95	guard row

BLOCK 1

0	guard row
2	Arlu
4	Atca
6	Arva
8	Kopr
10	Riau
12	guard row
13.5	Agsp
15	Stco
16.5	Agri
18	Elci

19.5	Elsa
21	Pose
22.5	Agcr
24	Orhy
25.5	Agsm
27	guard row
28	Hebo
29	Pest
30	Lile
31	guard row
33	Riau
35	Arlu
37	Kopr
39	Atca
41	Arva
43	guard row
44	Lile
45	Hebo
46	Pest
47	guard row
48.5	Agri
50	Stco
51.5	Pose
53	Elci
54.5	Agsm
56	Agcr
57.5	Elsa
59	Orhy
60.5	Agsp
62	guard row
63	Hebo
64	Pest
65	Lile
66	guard row
67.5	Elsa
70.5	Stco
72	Orhy
73.5	Elci
75	Agri
76.5	Pose
78	Agcr
79.5	Agsm
81	guard row
83	Riau
85	Arva
87	Atca
89	Kopr
91	Arlu
93	Pied
95	Juos
96	guard row