

0012

July 3, 1985

TO: Coal File

FROM: Lynn Kunzler, Reclamation Biologist 

RE: Need for Revegetation Along the Miller Creek Diversion,  
U. S. Fuel Company, Hiawatha Complex, ACT/007/011, Folder  
No. 7 and 14, Carbon County, Utah

On June 27, 1985 I visited the above referenced site with Mr. Bob Ecli of U. S. Fuel Company. The purpose of the visit was to assess the need for supplemental revegetation as per the NOV abatement approval letter of February 7, 1985.

#### Background

The Miller Creek Diversion was first seeded in May of 1979 with the following seed mix:

<u>Species</u>	<u>Bulk Seed Rate/acre</u>
Fairway crested wheatgrass	4.2 lbs
Smooth brome	3.3 lbs
Indian ricegrass	1.7 lbs
Intermediate wheatgrass	2 lbs
Russian wildrye	1 lb
Sand dropseed	.8 lbs
Yellow sweetclover	2.5 lbs
Alfalfa	1 lb
Flax	.5 lb
Penstemon	.5 lb
Bitterbrush	.7 lb

The site was hydromulched with 1500 lbs of wood fiber mulch. The seed was mixed in with the mulch.

#### Discussion

Examination of the site showed three slope situations existed: relatively flat areas, north facing slopes, south facing slopes, with vegetation responding differently to each.

## Flat Areas

Plant diversity was greatest on these sites. Plant cover was generally greater than 35% with some small patches exceeding 75% plants were vigorous and healthy with evidence of natural reseeding occurring. In addition to the 11 species seeded, the following species had invaded: snowberry, cottonwood, orchard grass, willow, northern sweetvetch, rubber rabbitbrush, houndstomgue, globemallow, big sagebrush, squirrel tail, and one unidentified forb (possibly an evening primrose). No additional revegetation should be needed for these areas.

## North Facing Slopes

Plant diversity is much the same as the flat areas with the exception that Russian wildrye, crested wheatgrass and smooth brome are more dominant with other species having only an occassional to rare occurrence. Plant cover is approximately 20%. At a distance, these slopes appear to be sparsely vegetated, however at a close examination, plant density is high. Plant growth appears somewhat stagnant with many smaller grasses filling in the apparent bare spots between vigorous plants (mostly russian wildrye, crested wheatgrass, intermeiate wheatgrass and smooth brome. Since this site is stable and will probably be redisturbed when the area is regraded for final revegetation, supplemental revegetation is not needed at this time.

## South Facing Slopes

Vegetation on this site is sparse with cover between 5 and 10%. Species diversity is low with Russian wildrye, intermediate wheatgrass and crested wheatgrass dominating. Russian thistle, bitter brush (one plant), winterfat (one plant), alfalfa, flax and penstemon being the only other species observed. Probable causes for this poor vegetation performance include a combination of the following: low seeding rate, improper timing, steep slope, exposure, unappropriate seeding methodology (mixing seed with mulch) and poor species selection (several species used are not generally adapted for site conditions).

This site is in need of supplemental revegetation from approximately the west end of the sediment pond (on the other side of Miller Creek) to the stream crossing.

The following is recommended to improve revegetation success on this site:

1. Timing - the area should be seeded late fall (mid October to November)
2. Slope - while little, if any, can be done at this time to reduce the slope, should a borrow area be needed in the future, this would appear to be a good site since the removal of the material would reduce the slope.

3. Methodology - the area should be hydroseeded or hand broadcast. Seed should not be mixed with the mulch to insure contact with the soil. Mulch should be applied after seeding at a minimum rate of 2500 lbs. per acre.
4. Species selection and rate - the following species are found on the site (in low number) or are generally adapted to site conditions:

SEED MIX		Rate
<u>Grass &amp; Forbs</u>	Species	<u>PLS*/acre</u>
	Intermediate wheatgrass ( <u>Axyropon intermedium</u> )	4
	Indian Ricegrass ( <u>Oryzopsis hymenoides</u> )	3
	Thickspite wheatgrass ( <u>Agropyron dasystachyum</u> )	3
	Western wheatgrass ( <u>Agropyron smithii</u> )	3
	Yellow sweetclover ( <u>Melilotus officinalis</u> )	2
	Alfalfa ( <u>Medicago sativa</u> )	1
	Lewis flax ( <u>Linum lewisii</u> )	1
	Palmer Penstemon ( <u>Penstemon palmerii</u> )	.5
	TOTAL	<u>17.5</u>
<u>Shrub &amp; Trees</u>		rate**
	Cottonwood ( <u>Populus angustifolia</u> )	50
	Red-osier Dogwood ( <u>Cornus stolonifera</u> )	25
	Chokecherry ( <u>Prunus virginiana</u> )	25
	TOTAL	<u>100</u>

- \* Pure Live Seed
- \*\* Number of plants to be planted within five feet of stream.

5. **E**xposure - While nothing can be done to change the exposure, the ill effects of the southerly exposure can be reduced by planting trees and tall shrubs along the edge of Miller Creek. This will also enhance the area for resident wildlife populations.

Conclusions

With the exception of the south facing slopes, the Miller Creek Diversion is well vegetated with evidence of plant succession occurring. Condition of the North Facing slopes, while stable and with a high plant diversity and density at this time could possibly deteriorate and should be monitored. South facing slopes need supplemental revegetation and to the extent possible should follow the above stated recommendations.

jvb  
 cc: Bob Eccli  
       Bart Kale  
       J. Helfrich  
 U308R