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MEMORANDUM

TO: Paul Baker

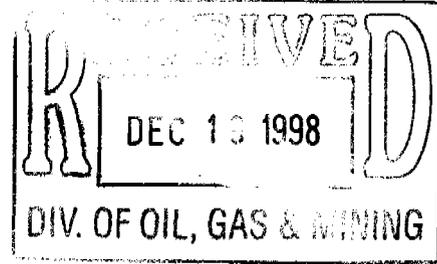
FROM: Patrick Collins

DATE: December 16, 1998

SUBJECT: Seeding at Wellington (ACT/007/012)

ATTACHMENTS: Seed Mixtures

COPY TO: Dennis Schwehr



*ACT/007/012 # 2 of 5
 NOV file Copy PAUL*

As part of the abatement for NOV No. N98-41-5-1, we were required to "prepare and seed areas where the stockpiles were and the expanded stockpile". This memo is to inform you that these tasks have been accomplished. Following are the methods used and field notes about the project.

Date Accomplished: December 15, 1998.

Weather Conditions: Clear, temperatures in the 50's F.

Seedbed Preparations: We used a small D7 dozer to prepare the areas prior to seeding. On the expanded pile we deep-ripped the surface of the top of the stockpile with irregularly ripped patterns. On the side slopes we used the ripper blades to place short furrows around stockpile parallel with the contours to impeded erosion and catch seed and available precipitation.

The surfaces of the areas where the topsoil was removed were smooth and compacted as a result of removal by scrapers. In these two areas we deep-ripped the surfaces with irregular patterns perpendicular to the natural runoff flow direction. As the operator deep-ripped, he also dropped his front blade at regular intervals to "gouge" the surface by making deep depressions in the ground. The deep-ripping and gouging should harvest available natural precipitation to enhance seed germination and provide more water for subsequent plant establishment for the species seeded.

Seeding Methods: The seed was broadcasted over all areas using cyclone seeders. The seeding was done immediately following the ripping and gouging procedures.

Seed Mixtures: We used the pre-approved seed mixtures for the sites (attached to this memo). At the expanded topsoil site, we used the 'Interim Mix' because this pile will be re-disturbed and used for final reclamation. However, on the areas where the topsoil was removed, we used a 'Final Seed Mix' because there are no plans to re-disturb these areas in the near future.

Notes: Because seeding was done immediately following ripping and gouging, the seedbed did not had time to "settle out". In addition, the soils were dry and loose so seed-to-soil contact should be excellent.

Although the substrates were different in the areas, it should be interesting to compare establishment success of species of the 'Interim' vs. 'Final' seed mixes.

SEED MIXTURES FOR SEEDING AT WELLINGTON PREPARATION PLANT
December 7, 1998

FINAL SEED MIXTURE FOR AREAS WHERE
STORED TOPSOIL WAS REMOVED

(near main access road)

Atriplex-Hilaria Rate/acre # Seeds/ft²
(Available seeds only)

<i>Atriplex confertifolia</i>	6.00	8.82
<i>Ceratoides lanata</i>	6.00	7.58
<i>Chrysothamnus nauseosus</i>	0.50	4.59
<i>Artemisia nova</i>	0.25	5.21
<i>Atriplex canescens</i>	6.00	7.58
<i>Atriplex corrugata*</i>		
<i>Ephedra viridis</i>	4.00	2.30
<i>Sphaeralcea coccinea</i>	1.00	11.48
<i>Helianthus annuus**</i>	4.00	5.33
<i>Linum lewisii**</i>	2.00	12.76
<i>Mellilotus officinalis</i>	3.00	17.91
<i>Bouteloua gracilis</i>	1.00	16.32
<i>Hilaria jamesii</i>	4.00	14.60
<i>Elymus trachycaulus</i>	4.00	14.69
<i>Sporobolus airoides</i>	0.25	10.04
<i>Stipa hymenoides</i>	3.00	12.95

TOTALS 45.00 152.14

* Seeds not available

** Substitute species

INTERIM SEED MIXTURE FOR TOPSOIL
STORAGE PILE (near Coarse Refuse Pile)
Interim Mixture

	Rate/acre	# Seeds/ft ²
<i>Atriplex canescens</i>	4.00	5.05
<i>Linum lewisii</i>	2.00	12.76
<i>Mellilotus officinalis</i>	2.00	11.94
<i>Medicago sativa</i>	2.00	9.64
<i>Elymus junceus</i>	4.00	16.07
<i>Agropyron cristatum</i>	6.00	27.55
<i>Sitanion hystrix</i>	2.00	8.82
<i>Elymus lanceolatus</i>	6.00	21.21
Totals	28.00	113.04

*** (Broadcast seeding rates)