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**Technical Analysis and Findings**  
**Utah Coal Regulatory Program**

**PID:** C0150015  
**TaskID:** 4700  
**Mine Name:** EMERY DEEP MINE  
**Title:** REVEGETATION & DUST CONTROL REVISION

**Operation Plan**

**Topsoil and Subsoil**

*Analysis:*

This application changes the information in Chapter III p. 4a to reflect the course of action agreed upon during a meeting held at the mine site on April 16, 2014. The application states that the three recommendations made on page 5/5 of Section 11 (Contemporaneous Reclamation ) of Division Inspection Report #3810 will be implemented. The amendment then summarizes the work to be accomplished. All locations will be disced on the contour to incorporate 1 ton/acre straw or hay mulch and then seeded with the revised interim mix and all sites will be resampled after grading for pH, EC and SAR. Following through with the above reclamation will meet the commitment in the plan for item 2 of the reclamation practice investigative study (Chap III p. 4a)

pburton

**Reclamation Plan**

**Contemporaneous Reclamation General**

*Analysis:*

On October 8, 2014 the Division received a response to the deficiencies noted in task 4654. The deficiency noted under the contemporaneous section of the regulations noted that: The amendment should include a vegetation success monitoring schedule for the three areas that are seeded.

**Permittee Response:**

A field meeting was held on 4/16/14 to reengage the revegetation success and reclaimability study by Mt. Nebo entitled Reclamation Monitoring Study for the Emery Mine – Vegetation and Soils dated December 2003 and contained in permit 015/015 at Chapter III Appendix III-1. The last meeting on this project was held on October 11, 2011 (DOGM inspection report 2895). The results of the study and the 2011 site meeting were to proceed to Phase II. Phase II was to be choosing representative sites with varying soil chemistry to show vegetative success for future reclamation of the mine site. Refer to DOGM inspection report #3810 dated 4/16/14 for details and photographs. After a review of the chronology of events since 2003, the team chose several sites to visit based on the soil chemistry and vegetation. Three stockpiled soil locations were chosen to demonstrate vegetation/reclamation success on poor, fair and good soil. During the field tour it was decided that several of the previous areas of concern (ponds) could be left with minimal work as post mine

wildlife habitat. The three sites that were chosen to demonstrate reclamation success are Sites 3-5 (Pond #6 stockpiles, Map III-2); site 21 (partially removed reverse osmosis pond #4, Plate III-4); and Site 14 (long subsoil pile adjacent to the proposed prep plant site, Chapter III, App III Table I).

Vegetative success on these sites will be compared to control sites 12 and 13.

The sites below will be prepared and seeded during the fall 2014 with results reported out through the annual report process.

1.) Implement DOGM's three recommendations on Page 5/5 section 11 (Contemporaneous Reclamation) of inspection report 3810.

a. Sites 3-5: Pond #6 - Good quality soil

i. Three-sided small metal post barb wire fence to preclude grazing.

ii. Regrade piles to lesser slope similar to 4th East portal topsoil stockpile

iii. Combine the smaller subsoil pile with the topsoil pile resulting in two piles of good quality

b. Site 21: Reverse Osmosis Pond #4 - Fair quality soil

i. Regrade the disturbed SE dam of the pond into the bottom of the pond to a depth of 6 inches

ii. Collect soil samples from the bottom of the RO pond as well as the regarded berm material

c. Site 14: Long subsoil pile - Poor quality soil

i. Backfill a small portion of the ditch as a demonstration plot as proving vegetation success on this poor soil would help reduce future reclamation cost drastically.

2.) Once graded the sites will be disced on the contour to incorporate 1 ton/acre straw or hay mulch and then seeded with the following seed mix per Mt. Nebo and DOGM suggestions. All sites will be sampled after grading for ph, EC and SAR from depths of zero to 6 inches and 6 inches to 12 inches.

#### SEED MIX FOR THE EMERY MINE RECLAMATION TEST AREAS

##### SALT DESERT AREAS

20 June 2014

| SHRUBS  | Rate | (PLS/Ac) | Seeds/Ft <sup>2</sup> |
|---|------|----------|-----------------------|
| Atriplex canescens Fourwing saltbush                      | 5.00 |          | 6.31                  |
| Atriplex confertifolia Shadscale                          | 5.00 |          | 7.35                  |
| Atriplex corrugata Mat saltbush                           | 5.00 |          | 6.89                  |
| Atriplex gardneri var. cuneata Castle Valley clover       | 3.00 |          | 7.64                  |
| Krascheninnikovia lanata Winterfat                        | 5.00 |          | 6.31                  |
| FORBS   |      |          |                       |
| Eriogonumunbellatum Sulfur buckwheat                      | 1.50 |          | 7.20                  |
| Helianthus annuus Sunflower                               | 5.00 |          | 6.66                  |
| Phacelia crenulata var. corrugata Corr. phacelia          | 0.30 |          | 5.51                  |
| Sphaeralceagrossulariaefolia Goose-berry leaf globemallow | 0.50 |          | 5.74                  |
| GRASSES   |      |          |                       |
| Elymus junceus Russian wildrye                            | 0.30 |          | 4.02                  |
| Elymus smithii Westernwheatgrass                          | 2.00 |          | 5.79                  |
| Hilaria jamesii Galleta                                   | 2.00 |          | 7.30                  |
| Sporobolus airoides Alkali sacaton                        | 0.15 |          | 6.03                  |
| Sporobolus flexuosus Mesa dropseed                        | 0.10 |          | 7.64                  |
| Stipa hymenoides Indian ricegrass                         | 1.50 |          | 6.47                  |
|   |      | Totals   | 36.35 96.85           |

\* Rates based on employing broadcast seeding methods (reduce by 50% when drill-seeded).

\*\* Due to commercial availability, species can be substituted by a qualified botanist.

3. The qualitative part of the Phase II study will be performed annually and the quantitative aspects of the Phase II study will be performed between the 4th and 6th year, following initial implementation of enhancement methods. The present reclamation methods shall be correlated with the historical weather information obtained from on-site weather station.

4. Based on the follow-up study, a total reclamation plan shall be developed for the Emery mine site. The plan is to incorporate and utilize the best reclamation practices found through the previous investigative studies. The final reclamation plan will be developed in conjunction with DOGM and submitted 12 months prior to initiating final reclamation.

All information obtained through all studies shall be submitted with the annual report.

The information is adequate to meet the requirements of this section of the regulations, the application is recommended for approval.

