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July 3, 1990

TO: Pamela Grubaugh-Littig, Permit Supervisor
FROM: Henry Sauer, Reclamation Soils Specialist *HS*
RE: Topsoil and Subsoil Removal, Waste Rock Storage Facility, Utah
Power and Light Company, Cottonwood/
Wilberg Mine, ACT/015/019, Folder #2, Emery County, Utah

Synopsis

On two separate occasions, I visited the site of the Cottonwood/Wilberg Waste Rock Storage Facility to observe the topsoil/subsoil removal operations. On June 15, 1990, I was accompanied by Susan White of the Division, and Guy Davis of Utah Power and Light Company (UP&L). On June 28, 1990, I was accompanied by Jeff Emmons of the Division and Guy Davis.

The forthcoming analysis is an attempt to summarize the topsoil/subsoil removal activities, and particular logic behind my subsequent recommendations to the company representative (Guy Davis) regarding the following:

- * the depth of topsoil/subsoil removal;
- * topsoil/subsoil stockpiling, protection and revegetation;
- * topsoil/subsoil mass balance deficiencies or surplus; and
- * topsoil subsoil quality and its effects on revegetating the stockpiles and waste rock.

Analysis

As a preface to the discussions related to topsoil/subsoil removal, the following should be noted:

1. Topsoil/subsoil within the waste rock cell area are on erosional pediments (i.e., conical hillslopes, valley floor outwash) predominantly derived from Mancos Shale.

Page 2
Memo to P. Grubaugh-Littig
ACT/015/019
July 3, 1990

2. The subsoil material within the waste rock cell area is of marginal quality (high sodium adsorption ratio, high soluble salts as indicated by elevated electrical conductivity [E.C.] levels) as a plant growth medium.
3. Waste rock cell area (valley floor outwash) soil is highly variable. The variability is the result of various depositional environments and parent material.
4. Soil of the haul road and subsoil stockpile vicinity are glacial, alluvial and colluvial terraces predominantly derived from light-colored sandstones. These soils are considered good plant growth medium (excluding percent rock fragments) when compared with the Division's Guidelines for Management of Topsoil and Overburden, Table 2.
5. The operational berms which will be constructed throughout the life of the facility will be constructed and analyzed (to determine acid and/or toxic-forming or alkalinity-forming potential) in such a way as to place good quality waste rock within two feet of the outslopes of the berm. This will ensure that the top four feet (including topsoil/subsoil application) of the finished waste rock cell will be comprised of suitable plant growth material.

Soil removal operations began along the haul road right-of-way. It was immediately apparent that the high percentage of rocks and boulders would prohibit removal of subsoil below the 6-12 inches of topsoil excavation. As topsoil removal commenced in the vicinity of the subsoil stockpile area, it was apparent that only topsoil could be removed from this area. It was the Division's wishes that if possible, the haul road and subsoil stockpile areas could be utilized as "topsoil/subsoil borrow areas", utilizing this excess material to cover the waste rock and diminish the quantity of topsoil/subsoil excavated from the waste rock cell area. Hence, soil material was removed in the waste rock cell area to at least the planned excavation depths (Appendix XXI, Plate 7-2).

Page 3
Memo to P. Grubaugh-Littig
ACT/015/019
July 3, 1990

The operator has gone to great lengths to prevent removal of poor quality material. However, some poor quality material was eventually excavated and placed on the subsoil stockpile.

Recommendations

The following recommendations and comments were expressed to the operator:

1. The subsoil material which was being excavated on June 28, 1990 was of extremely poor quality (i.e., coarse, unweathered shale) and the Division recommended that subsoil excavation operations should cease. However, the operator was informed that the ultimate decision was up to UP&L.
2. The material which had been placed in the subsoil stockpile would be very difficult to revegetate.
3. Even though subsoil volume deficiencies may arise from ceasing subsoil removal operations, the Division would rather see a topsoil/subsoil borrow area be developed.
4. The Division would be in favor of an 18-inch topsoil/subsoil cover atop the waste rock material, provided the Bureau of Land Management concurred with this soil treatment.

djh

cc: G. Davis, UP&L
V. Payne, UP&L
J. Emmons, DOGM
S. White, DOGM

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