

0014



# State of Utah

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DIVISION OF OIL, GAS AND MINING

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November 21, 1996

TO: Folder #2

THRU: Daron Haddock, Permit Supervisor

FROM: Robert Davidson, Soils Reclamation Specialist *RAO*

RE: Technical Analysis of Deficiency Response to Division's TA (July 25, 1996),  
Wellington Preparation Plant, Nevada Electric Investment Company, ACT/007/012,  
Folder #2, Carbon County, Utah

## RECLAMATION PLAN TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

### Analysis:

The Division's July 25, 1996, Technical Analysis (TA) for the Wellington Mine Reclamation Plan (MRP) contained the following deficiency: **R645-301-533.252**, *supply the needed amount of borrow material to meet the minimum regulatory requirement of 4 feet of the best available, nontoxic and noncombustible material*. In response to the above deficiency, Nevada Electric Investment Company (NEICO) has provided a Deficiency Response submittal which replaces a portion of the existing MRP's Section 2.41, pages 4-10, (6/30/95 & 10/13/95) with an amended Section 2.41, pages 4-8, (10/23/96). Section 2.41 discusses the proposed topsoil borrow areas. The submittal also replaces Drawing G9-3511, certified 6/95 of the existing MRP with an amended Drawing G9-3511, certified 10/96. Drawing G9-3511 illustrates the potential borrow areas.

Drawing E9-3511 show all potential topsoil borrow areas which include areas "A" through "G". These areas consist mainly of native soils and some mine-related and agriculturally disturbed soils. The native soils are limited by their physical and chemical makeup as substitute topsoil. Section 2.22 discusses proposed borrow areas and presents data from 7 sampling periods. Area "D" and "G" soils show a thin veneer of mixed alluvium overlying residuum from Mancos shale. These areas are currently not approved as soil borrow and/or substitute topsoil. The



likelihood of reclamation success in these soils after disturbance is significantly reduced because of the Mancos physiography and residuum influence.

Topsoil Borrow Areas "A" and "E" were initially proposed in an earlier (6/30/96) submittal of Section 2.41. In the current Section 2.41 submittal, soil borrow area "B" has been substituted for soil borrow area "E" because area "E" lacks the soil quantity and quality necessary for the reclamation commitments at the Wellington site. Salvage depths in areas "A" and "B" will be at 2.0 and 5.6 feet, respectively.

The earlier Section 2.41 submittal contained a commitment from NEICO to conduct a soils survey of the soil borrow area "E" in April 1996. Results from the 1996 sampling of Area "E" (Section 2.22, 7th Sample Period) showed a deficit in supplying the best available, nontoxic suitable soil cover. Only 48.7%, or 31 acres, of the site contains salvageable soil to a 10 inch depth. Unsuitable slick spots within the area contain sodic and/or saline soils which preclude the greater majority of these soils from salvage. In addition, reclamation of the borrow site is severely impeded because disturbance of the marginal surface soils would expose additional sodic/saline subsurface soils as indicated by the data. Finally, subsurface soils at depths just below 10 inches and greater contain high AB-DTPA extractable selenium ( $>0.1$  mg/Kg). The 1996 Area "E" samples include NEICO-8, -9, -10, -11 and -12.

Area "A" was sampled extensively in 1995 (Section 2.22, 6th Sampling Period) to assess the potential of this area as borrow material. The NEICO-1 sample shows this soil as salvageable to 72 inches without any deleterious qualities except for a clay stratum located between 72 and 91 inches. Three additional samples were taken in area "A" and include NEICO-2, -3, and -4. Soils in these areas have much higher EC and SAR values with heavier clay textures. Saline and alkaline conditions exist in all cases at the 2-foot depth.

Salt affected soils within Borrow Area "A" may preclude these soils as borrow material. Surface soil salvage will expose salt affected subsoils which will negatively impact the borrow area reclamation and revegetation success. Since salt accumulations move within a soil profile and vary according to seasonal variability and moisture availability, special handling and mixing requirements need to be addressed to help assure reclamation success. These include:

- *Provide on-site, real-time analysis of Area "A" soils in 18 inch depth increments to help demarcate soil suitability during salvage. Analyses shall include pH, EC and SAR. Soil salvage will proceed only after determining subsurface soil quality.*
- *Soil borrow of Area "A" soils should only occur after Area "B" soils have been exhausted.*

The central portion of Area "B" soils are represented by NEICO-6 while the southern end of Area "B" may be represented by NEICO-5 soil samples (Section 2.22, 6th Sampling

Period). No limiting factors were encountered for the NEICO-6 sample location. For the NEICO-5 sample location, a calcic horizon exists between 16 and 32 inches, shale bedrock is encountered at 123 inches, and soil pH values are rated poor (8.5 to 9.0) below 16 inches. Based on NEICO-5 and -6 samples, this area could be salvaged to a 6.25 foot depth while leaving 18 inches of suitable material for revegetation of the borrow area. *Additional sampling of Area "B" soils should be performed to further examine the northern and periphery portions.*

Soil profile monitoring and analysis will be conducted immediately prior to salvaging soils from borrow areas "A" and "B" and will include EC, pH, and SAR. These testing procedures will help determine the location and amplitude of salt accumulations. Soil handling plans will be based on analyses results.

*Section 2.41, General Requirements (R645-301-241), page 3, Coarse Refuse Pile, Slurry Ponds, and Coarse Slurry Pond subsections all reference Borrow Area "E" for imported soil during reclamation. Area "E" should be replaced by Area "B" as explained in the new submittal of Section 2.41.*

**Findings:**

The plan does not meet the minimum requirements of this section. The Permittee must provide the following, in accordance with the requirements of:

**R645-301-233.** Provide a commitment in the text of the plan to preform the following: 1) during salvage provide on-site, real-time analysis of Area "A" soils, in 18 inch depth increments, including analysis of pH, EC and SAR, 2) proceed with soil salvage only after determining subsurface soil quality, 3) proceed with soil borrow Area "A" soils only after Area "B" soils have been exhausted, and 4) prior to salvage, sample Area "B" soils in the northern and periphery portions of this proposed topsoil borrow area (The Division requests that they be apprised of the sampling agenda and participate during the sampling).

**R645-301-241.** Area "E" should be replaced by Area "B" as explained in the new submittal of Section 2.41.