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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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July 23, 1996

TO: Folder #2

THRU: Joe Helfrich, Permit Supervisor *JH*

FROM: Robert Davidson, Soils Reclamation Specialist *RAD*

RE: Technical Analysis of Results from Soil Sampling "Area E", Wellington Preparation Plant, Nevada Electric Investment Corporation, ACT/007/012-96B, Folder #2, Carbon County, Utah

SYNOPSIS

Nevada Electric Investment Corporation (NEICO) submitted to the Division on May 31, 1996 results from soil sampling from Area "E" of the borrow areas to be used for final reclamation at the Wellington Preparation Plant. In order to meet the requirements of R645-301.224, R645-301.233, and R645-301.233.100, NEICO committed to conduct a soils survey of this area in April 1996, followed by a final report in May 1996. The following provides a technical analysis of the report.

RECLAMATION PLAN TOPSOIL AND SUBSOIL

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

Analysis:

Nevada Electric Investment Corporation (NEICO) committed to provide an adequate soil survey of the topsoil borrow "Area E". The current study was conducted and reported by James H. Nyenhuis (Certified Professional Soils Scientist) to determine the quality and quantity of soil materials present that could potentially be salvaged for use as reclamation topsoil on the various coal waste disturbance areas. As stated in the Mine Reclamation Plan (Sec. 2.41, pp. 5-10, dated 10/13/95), a commitment was made to provide adequate soil survey information for the Topsoil Borrow area "E" as follows:



- R645-301.224. Substitute Topsoil. The permittee must provide a commitment which includes timing and methods to provide adequate soil survey information for the proposed Borrow Area "E" to identify the extent of slickspots and soil phases that are high in clay and sodium, as well as other problem areas. This information should be adequate to demonstrate suitability of the material and demonstrate that it is the best material available.

Topsoil borrow area "E" is within the NEICO permit boundary, contains approximately 63.7 acres, and is identified as Ravola Slickspot Complex. The current Mine Reclamation Plan proposes salvaging soil material to approximately 3.7 feet across "Area E".

Five soil description and sample sites (NEICO 8 thru 12) were selected from "Area E" for characterization. Three sites (NEICO 8, 9, & 11) were located within inactive agricultural fields. NEICO 8 and 9 were located in the west-central and east-central parts of the agricultural fields, respectively, while NEICO 11 was located in a "slickspot" inclusion. NEICO 10 and 12 were located in a small native area south-adjacent to the agricultural fields. NEICO 10 is located in soils supporting typical native vegetation and NEICO 12 is located in a nearby small "slickspot" inclusion.

Because the study was a special investigation designed to sample potential soil borrow materials, only the parameters with unsuitable values according to DOGM soil Table 2¹ were analyzed (i.e., pH, EC, SAR, Selenium, & Boron) by the soils laboratory. Soil Texture, rock fragment content, Munsell color, and qualitative calcium carbonate content were determined in the field. Acid/Base Potential (ABP) was not run on the samples since ABP was previously determined in the 1994 Mt. Nebo Scientific study not to be a problem with either the coal waste materials or the native soils.

Complete soil profile descriptions and a thorough discussion of the chemical and physical parameters are given for each of the five sites. Field soil profile descriptions were described and recorded for the five soil pedons accompanied by footnotes in Appendix A, profile and landscape photographs are given in Appendix B, and soil laboratory data is provided in Appendix C. Locations of the five sampling sites are provided on the Soils Map.

¹Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

Based on the site-specific field and laboratory data, three of the five sites (NEICO 8, 9, & 10) were classified according to current NRCS soil taxonomy. The slickspots (NEICO 11 & 12) are barren or nearly barren and, by convention, are not classified by NRCS. Soils at NEICO 8, 9, and 10 were classified to established Utah soil series, with specific differences noted. NEICO 11 and 12 slickspots were not classified to established Utah soil series. In addition, soil descriptions and salvage suitability is provided for each site by depth, according to the DOGM guidelines.

In summary, the only suitable soil that could be salvaged in "Area E" is from sample NEICO 9 (Map Unit 93, Ravola). Map Unit 93 constitutes approximately 57.3% (36.5 acres) of the 63.7 acre "Area E". Unsuitable slickspot inclusions approximate 15% of Map Unit 93 and are highly visible and could be flagged and avoided during salvage operations. As a result, the soil sampling results show that 31 acres could be salvaged to 10 inches which equals approximately 41,544 yd³ of suitable, available topsoil that could be salvaged from Area "E". This would still leave a minimum of 18 inches of suitable topsoil to provide a sufficient growth medium for revegetation of Area "E" after the salvaging operation.

However, 57,613 yd³ of borrow material is needed to fulfill the minimum regulatory requirements for the 4 foot thick cover commitment for the Plant Coarse Refuse Pile, the Slurry Pond Coarse Refuse Pile and the Slurry Pond Basin Area. The 41,544 yd³ of borrow from "Area E" does not adequately supply the needed borrow. An additional 16,069 yd³ of borrow are still needed to fulfill the minimum regulatory requirement for cover.

Findings:

The Permittee has satisfactorily addressed the commitment to provide an adequate soil survey for "Area E" to determine the quality and quantity of soil materials that could be salvaged for use as reclamation topsoil.

R645-301-533.252. The plan does not meet the minimum regulatory requirement to supply the needed amount of borrow material to meet the minimum regulatory requirement of 4 feet of the best available, nontoxic and noncombustible material.

cc: Darron Hadock

WELLSOIL.STA