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January 30, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor

FROM: Robert Davidson, Soils Reclamation Specialist RAD

RE: EARTHCO - New Proposed Topsoil Borrow Areas (Addendum #1) Minor Amendment, Nevada Electric Investment Company, Wellington Preparation Plant, ACT/007/012-97I, Folder #2, Carbon County, Utah

SUMMARY:

The topsoil borrow issues and events for the Wellington Preparation Plant have occurred as follows:

- 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.*

- On October 23, 1996, Nevada Electric Investment Company (NEICO) provided a "Deficiency Response" submittal which replaced 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) for proposed topsoil borrow areas "A" through "G". The submittal also replaced Drawing G9-3511, certified 6/95 with an amended Drawing G9-3511, certified 10/96 illustrating the potential borrow areas.

- The Division responded to the 10/23/96 Deficiency Response on December 23, 1996. Soil Borrow Areas "A" and "B" were approved for soil borrow and were incorporated into the MRP with two outstanding deficiency findings for R645-301-233 and R645-301-241. In review, these two outstanding deficiency findings required that on-site, real-time analysis be provided for Area "A" to demarcate soil salvage based on subsurface soil quality, borrow of Area "A" soils should only occur after Area "B" soils have been exhausted, additional sampling of Area "B" soils should be performed

to further examine the northern and periphery portions of this proposed topsoil borrow area , and finally Area "E" should be replaced by Area "B" in the MRP as referenced in Section 2.41.

- NEICO's Midterm submittal requested that the application for using Soil Borrow Areas "A", "B", and "C" (Plate G9-3511) be withdrawn from the MRP because Soil-Borrow Area "A" had been classified Prime Farmland as determined by the NRCS on April 11, 1997, EARTHCO proposed that soil removal and excavation within Areas "B" and "C" would create a catchment basin that would potentially impound water adjacent to a primary road and rail spur. Finally, EARTHCO committed to investigate alternatives for soil borrow by replacing areas "A", "B", and "C".

- The Division responded with a Technical Analysis on September 30, 1997 which contained three deficiencies. The Division rejected the expulsion of Areas "B" and "C" from the disturbance area because EARTHCO and failed to find alternative borrow. In addition, extra pressure is now placed on the remaining Borrow Areas "B" and "C" because "Prime Farmland" area "A" cannot be used for soil borrow. The statement for creating a "catchment basin" is false because the MRP does not contemplate nor does the Division approve establishing an impoundment in the soil borrow areas.

- A meeting was held on October 16, 1997, with EARTHCO (Steve and Ana Treweek) and the Division (Bob Davidson, Paul Baker, Wayne Western, Susan White, Daron Haddock, Joe Helfrich, and Mary Ann Wright). EARTHCO presented an Alternative Soil Borrow Area "H" located in the hills which lie west of the Wellington Preparation Plant. Their proposal also included using Mancoes as part of the four feet fill cover in addition to soil. The Division rejected the Mancoes proposal. The meeting concluded that EARTHCO still needed to locate additional soil borrow before the Division could release Areas "B" and "C".

- EARTHCO responded with a submittal on November 5, 1997 with a proposed topsoil borrow area minor amendment that replaced Section 2.41 and Drawings G9-3511 and E9-3341. Four potential topsoil borrow areas and earthen dikes were proposed as the soil borrow for reclamation needs of the Wellington site.

- The Division responded to the November 5th submittal that contained several deficiencies in operations and reclamation. Section 2.22 needed to be amended for the current soil survey for Topsoil Borrow Area "H". Order-I soil surveys were needed for areas "D" and "G". The Clearwater Pond dikes need to be characterized for soil suitability according to the Division soil guidelines. In terms of supplying the

"best available, nontoxic" material for reclamation using salt affected soils, the MRP needs to discuss excavation depth and borrow area reclamation as influenced by upward mobility of salts. A 1-foot clay-capillary cover would accomplish the same purposes for a capillary barrier as a 2-foot cover would. Justification for having the proposed 2-foot capillary cover needs to be given for: (a) the extra depth and (b) in terms of importing additional salt in the "salt-laden" soils. The MRP needs to provide a soils-borrow map that coded soil-removal areas and depths within each of the Topsoil Borrow Areas "D", "G" and "H". In terms excavation depth, salt affected soils and reclamation of Area "E", the MRP needs to consider borrow area drainage, possible water table contamination problems, and how the reclaimed Area "E" topography and drainage would interact with the Siaperas Ditch. A reclamation contour relief map for Area "E" containing cross sections needs to be provided. These maps need to include the Siaperas Ditch and the northern periphery of the upper reclaimed refuse pond. The pumphouse needs to be located on Dwg. G9-3511 and E9-3341 and accurately described in the text of Section 2.41. Finally, coal waste that remains on the surface of the main plant area needed to either be cleaned up and removed, or covered with four feet of soil materials.

- EARTHCO has responded with a series of submittals dated from December 19, 1997 through January 28, 1998. The latest submittal on January 28, 1998, completes the revised amendment and replaces Section 2.41 and Drawing G9-3511. Soil borrow investigations are added to the MRP for Areas "D", "E", "H", and "G".

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-220, -301-411.

Analysis:

Section 2.22 provides a detailed history of soil sampling in the topsoil borrow areas A, B, C, D, E, F, G and H with soil survey studies presented in 8 different sampling periods. These periods are presented with soil profile descriptions and laboratory analyses. Section 2.22 has not been amended nor modified by this amendment.

Section 2.41 contains a detailed account for soil resources available as soil borrow for

reclaiming the Wellington site, in particular the slurry ponds and coarse refuse "Gob" pile. According to the current submittal and based on the potential topsoil borrow areas and earthen dikes that have been proposed for reclaiming the Wellington Site, the following environmental resource information is provided with this current submittal:

- Additional extensive soil surveys have been performed for Areas D, G, and H. Soil Investigation Reports are provided in Section 2.41 for Areas D, E, G, and H. Map G9-3511 shows the location of each borrow area and the location for each soil pit as contained in both Sections 2.22 and 2.41. In addition to soil horizon descriptions and chemical characterizations, Section 2.41 soil borrow investigation reports also provide justification for amounts of soil available for soil borrow based on profile descriptions and chemical parameters according to the Division's Guidelines for Topsoil and Overburden[1].

- As a stipulation, substitute soil materials proposed for use in both the Clearwater and Lower Refuse Dikes will be sampled and characterized according to the Division Guidelines for Topsoil and Overburden (Table 2). Representation of the soil population in each dike by depth, breadth, and length will require obtaining statistically correct soil cores from each dike and area.

Findings:

As determined in the analysis section of this TA, approval of the plan is subject to the following Permit Conditions. Accordingly, the permittee has committed to comply with the requirements of the following Permit Conditions, as specified, and in accordance with the requirements of:

R645-301-224 and R645-301-233 - Substitute soil materials proposed for use in both the Clearwater and Lower Refuse Dikes will be sampled and characterized according to the Division Guidelines for Topsoil and Overburden (Table 2). Representation of the soil population in each dike by depth, breadth, and length will require obtaining statistically correct soil cores from each dike and area.

[1]Leatherwood, 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.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

The final reclamation plan for the permit area will ultimately depend on the topsoil borrow plan. This amendment determines topsoil borrow based on two different scenarios:

- **Worst-case Scenario**
  - Represents the existing conditions in the permit area.
  - Basis for setting bonding calculations.
  - Requires 1,031,300 cy of soil material (Table 2.41-1).
  - Requires soil borrow from Topsoil Borrow Areas H, E, D, and G; and soil from the Clearwater and Lower Refuse Dikes.
  - Disturbs vast amounts of acreage in undisturbed lands.
  - Maximizes environmental disturbance to the entire permit area.

- **Best-case Scenario**
  - Accounts for the approved operations of Covol's wash plant and refuse pond mining plan.
  - Basis for release of Topsoil Borrow Areas B and C for industrial development.
  - Requires 539,300 cy of soil material (Table 2.41-2).
  - Utilizes soil material salvaged from the Clearwater and Lower Refuse Dikes; impacted soils beneath the Lower Refuse Basin and the Coarse Slurry Pile; and a limited amount of acreage in Topsoil Borrow Area H.
  - Preserves undisturbed lands.
  - Minimizes environmental disturbance to the entire permit area.

General

Wellington was constructed and in operation prior to the enactment of SMCRA. The vast amount of surface disturbance acreage associated with the coal-waste slurry ponds occurred without any topsoil salvage. Since SMCRA, less than 4,000 cy of topsoil has been salvaged and stockpiled for reclamation.

Topsoil and Substitute Topsoil Requirements

The worst-case scenario is based on current conditions and requires a total amount of

topsoil borrow calculated at 1,031,300 cubic yards. Section 3.41, Revegetation Requirements, addresses soil depth requirements to meet vegetation cover standards. The section concludes that 4 feet of soil cover is required to successfully revegetate the slurry ponds, coarse slurry pile and coarse refuse pile. Appendix J calculates the volumes, depths and disturbed acreage to achieve the approved reclamation plan.

The best-case scenario minimizes total disturbance by maximizing the use of soil materials stored in the dikes. This scenario is based on Covol's approved mining plan and takes advantage of soil requirements and soil availability at the completion of mining. Under this scenario, 539,300 cubic yards of soil are required.

Section 2.41 summarizes the requirements necessary for borrow and substitute topsoil for both scenarios as follows (see tables 2.41-1 & 2.41-2 and map G9-3511):

- **Main Plant Area** - This 44.6 acre area will receive no additional soil. Coal waste will be removed and deposited on the coarse refuse pile.
- **River Pumphouse** - Requires 6 inches of topsoil for a total volume of 3000 cy. Worst-case scenario requires topsoil borrow from Area G. Under the best-case scenario, substitute soils are supplied from the Lower Refuse Dike.
- **Coarse Refuse Pile** - Requires 4 feet of soil for a total of 43,300 cy. Topsoil Borrow Area H supplies soil under both scenarios.
- **Upper and Lower Refuse Slurry Ponds**
  - Worst-case scenario - The upper and lower refuse slurry ponds will receive 4 feet of soil cover (985,000 cy). The first two feet of fine-grained subsoil is borrowed from Topsoil Borrow Area E, followed by two feet of coarse-grained topsoil from Topsoil Borrow Areas D, G and H as well as both dikes. A capillary break will exist between the fine-grained and coarse-grained soils thus helping prevent upward salt mobility.
  - Best-case scenario - This scenario requires that only the upper consolidated pond be covered with four feet of soil (493,000 cy). After Covol has successfully completed mining of the coal fines in both the upper and lower slurry ponds, washed tails will have been redeposited in the upper pond with the lower pond being returned to it's natural topography (Drawing 9704-T4). First the coarse slurry pile is redistributed to the upper refuse pond. After relocating the coarse slurry, the next step is the placement of two feet of soil supplied by removing impacted soils from both the Lower Refuse Basin and the Coarse Slurry Pile areas. The final two feet is supplied from regrading the Lower Refuse and Clearwater Dikes. A capillary break is supplied between the coarse slurry material and the fine-grained soils above.
- **Coarse Slurry Pile** - For both scenarios, the coarse slurry pile material and

impacted soils will be relocated onto the upper slurry pond prior to the final soil cover. Native in-place soils will be used to reclaim this area.

- **Clearwater Dike** - For both scenarios, the Clearwater dike is removed with the suitable soil materials (151,000 cy) salvaged and used in the topsoil redistribution plan for reclaimed areas. The cleared site will then be reclaimed by using existing native in-place soils uncovered with the removal of the dike and pond sediments.
- **Lower Refuse Dike**
  - Worst-case scenario - Approximately 29,700 cy of substitute soil would be made available when the dike is regraded to a 5:1 slope. Soils will be taken from the upper and downstream portions of the dike not exposed to slurry pond contaminants either through direct contact or through capillary action.
  - Best-case scenario - The dike is removed and regraded entirely to natural topography providing 110,400 cy of substitute topsoil.

Topsoil Borrow Areas

Section 2.22 contains numerous studies conducted to identify and characterize topsoil borrow areas. This submittal contains a series of reports that compile current soil survey studies for Topsoil Borrow Areas D, E, G and H. In total, eight separate topsoil borrow areas have been identified by past and present surveys (see Section 2.22, current submittal, and Map G9-3511). In the best-case scenario, no soil borrow is required from any of the areas except for a portion of Area H as described. The following summarizes each Topsoil Borrow Area:

- **Area A** - On April 11, 1997, the NRCS declared this area as Prime Farmland.
- **Area B and C** - In the current MRP, Topsoil Borrow Areas B and C have been designated as the proposed borrow areas containing the volume and quality of soils necessary to reclaim the site. However, with recent developments with EarthCo, the land within Area B and most of adjoining C is involved in a proposed land sale for industrial development. Therefore, this amendment requests that Borrow Areas B and C not be considered for future borrow. Approximately 13 acres of the eastern portion of Area C is not involved in the land sale and is incorporated into the new Area H.
- **Area D** - The soil borrow investigation report outlines six soil pits plus Neico-7 soil pit. For the worst-case scenario, an estimated 175,429 cy of topsoil is available for borrow. Most of the soil comes from Gerst, Juva Variant, and Stormitt soils in the northern portion of the Area. In the best-case scenario, no borrow is required from this area.
- **Area E** - Section 2.22, 7th Sample Period, discusses the suitability and availability of surface soils for borrow. In addition, the survey indicates that the deeper

substrate soils are less salt affected than shallower substrates and salt-affected surface areas. For the worst-case scenario, the amendment proposes using 6.5 feet of the shallower salt-affected salts as the initial 2 foot cover (492,550 cy), acting as fill and a capillary break between the coarse-grained surface cover. Suitable surface soils would be removed, stockpiled and used for resoiling Area E at the conclusion of borrow activities.

- **Area F** - Unsuitable for borrow.
- **Area G** - The soil borrow investigation reports 6 new soil pits plus Native-1 and Native-2 soil descriptions. The report shows 12,570 cy of topsoil is available for borrow from the hill crests within Stormitt soils. For the worst-case scenario, an estimated 3000 cy would be used to reclaim the pumphouse site; the remainder would be used on the upper and lower ponds.
- **Area H** - Area H is a new area recently investigated for soil borrow. A total of 15 new soil pits were investigated for this area. It is composed of 13 acres of the old Area C and lands adjoining Area C on the south and southeast. The soil borrow investigation shows that 179,332 cy of Stormitt series topsoil is available for borrow from the tops of knolls and ridges (Section 2.22, 8th Sample Period). For both worst- and best-case scenarios, approximately 43,300 cy of soil would be used to cover the coarse refuse pile (from C-1, EA-3, 4, & 5). For the worst-case, the remainder (136,032 cy) would be removed, transported and placed on the upper and lower slurry ponds.
- **Clearwater and Lower Refuse Dikes** - The amendment proposes using the soil materials stored in both the Clearwater and Lower Refuse Dikes. The Wellington site is pre-SMCRA with only minimal topsoil stockpiled. It is therefore prudent to use as much on-site disturbed available soil as possible. Such actions will minimize additional surface disturbance from undisturbed lands in a very fragile environment; these undisturbed lands would otherwise be used as soil borrow.

For both scenarios, the Clearwater Dike contains approximately 151,000 cy of substitute soils available for reclamation.

For the worst-case scenario, the Lower Refuse Dike contains 29,700 cy of soils. In the best-case scenario, the dike is regraded completely and creates 110,400 cy of substitute soils.

As stipulated, actual characterization of both dikes per Table 2 of the DOGM Guidelines will be performed in the near future by drilling (see Environmental Resource Section of this TA). In addition, during on-site excavation during reclamation, the identified dike soils will also be tested for texture, pH, EC, and SAR prior to distribution. Cleared portions of the dike will be reclaimed using

existing suitable native in-place soils daylighted with dike removal.

Findings:

The requirements of this section meets the regulatory requirements.

RECOMMENDATION:

Based on adequate soil borrow available for both worst and best case scenarios, Soil Borrow Areas B and C may be released as the approved soil borrow areas for reclaiming the Wellington site.

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