0016

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

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January 28, 1997

Bob
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review DO 97A

TO: Folder #2

THRU: Daron Haddock, Permit Supervisor DRH

FROM: Robert Davidson, Soils Reclamation Specialist RAD

RE: Division Order #97A, Hiawatha Mines, U. S. Fuel Company, ACT/007/011, File #2, Carbon County, Utah

ENVIRONMENTAL RESOURCE INFORMATION
SOILS RESOURCE INFORMATION

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

Technical Analysis:

In 1980, the Soil Conservation Service (SCS) conducted a detailed soil survey for South Fork and Middle Fork Areas. Detailed soil profile descriptions are included in Appendix II-1. However, no field notes are found in the MRP. Soil pit locations are located on Exhibits II-1, II-2, II-3 and II-5. The survey encompasses the entire surface facilities in the South Fork area and the upper portion of the surface facilities in the Middle Fork area.

Additional, less intensive soil survey information is provided in Appendix II-2 by the U.S. Forest Service (USFS), and in the SCS referenced publication "Soil Survey of Carbon Area, Utah." These 3rd Order soil surveys are used to describe the environmental soil resources for the entire permit area and for the surface disturbance areas within the lower Middle Fork, North Fork Facilities, Upper Railroad Yard and Preparation Plant. The 3rd Order soil surveys lack the specificity of a 1st Order soil survey which show individual soils as described by actual on-site profile descriptions. In fact, the 3rd Order conservation maps only include information for soil associations and complexes, not individual soil consociations. First Order soil surveys always include actual on-site soil pit excavations along with specific field data, detailed profiles descriptions, and appropriate map delineations.

The specificity of the 1st Order soil surveys allow adequate soil profile descriptions to

ascertain actual soil quality and volumes available for reclamation. Efforts have been made to correlate the SCS's 1st Order soil survey with the 3rd Order soil surveys published by USFS and the SCS. Correlated information aids in the delineation, clarification and interpretation of soils data for the purpose of identifying on-site soils. However, for all soil profile descriptions listed in Appendix II-2 and those published in the SCS soil conservation survey for Carbon County, Utah, not a single referenced soil survey pit is located within the surface disturbance areas of the Hiawatha complex. Neither of these soil survey documents contain actual on-site soil profile descriptions. Therefore, soil maps for the above listed areas lack the specificity needed to adequately assess the soils for reclamation purposes. The information and specificity of the 1st Order surveys would allow the assessment of soil quality, quantity, and volumes and determination for recoverable soils, substitute soils and fill materials.

Any pre-SMCRA area comprising disturbed soils should also be included in the soil survey. NRCS defines soils as "the collection of natural bodies in the earth's surface, in place modified or even made by man of earthy materials, containing living matter and supporting or capable of supporting plants out-of-doors." In fact, soil taxonomy provides nomenclature and taxonomic identification for soils with little or no profile development as Entisols. Otherwise, any refuse laden material may be labeled as coal waste. Therefore, pre-SMCRA areas containing disturbed soils should be included in the soil surveys, classified by depth and taxonomically identified. This specificity will allow the delineation of salvageable substitute soils, fill materials for reclamation purposes, and any surface disturbance containing coal refuse.

In conclusion, the current environmental resource section for the surface disturbance areas has insufficient information to determine accurately if additional quantities of appropriate, excess substitute soils exist to help supplement the present stockpiled soils. U.S. Fuel Company must provide soil surveys that adequately assesses the soil resources, complete with actual on-site soil profile descriptions, field notes, sampling documentation, and appropriate soil map delineations differentiating individual soil types. Soil survey information needs to be current, reported clearly and concisely, and be presented in a manner that provides the necessary information to construct soil mass balances. Accordingly, an adequate soil survey will supply the necessary information to project any possible soil deficits, excess soils and salvageable substitute soils. From these mass balance calculations, excess fills and substitute soils may be located to help offset the need to borrow soil. The ultimate goal is to lessen additional surface disturbance from the soil borrow areas. The Division requests notification for the location, sample density, and analytical procedures before U.S. Fuel conducts any additional surveys.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-220. U.S. Fuel must provide on-site soil surveys of the lower Middle Fork, North Fork Facilities, Upper Railroad Yard and Preparation Plant surface disturbance areas with the detail and specificity necessary to adequately describe the soils, disturbed soils and fills as for depth, volume, and quality. The detailed, on-site soil profile descriptions should include field notes correlated with soil pit locations and soil map delineations differentiating individual soil types. The purpose of this exercise is to clearly document the soil resources and provide the assessment of soil quality, quantity, and volumes for locating any recoverable substitute soils and fills to be used during reclamation. The Division requests notification for the location, sample density, and analytical procedures before U.S. Fuel Company conducts any additional soil surveys.

OPERATION PLAN
TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Accurate assessment of topsoil resources requires mass balances determinations based on salvaged soils, projected substitute topsoil and additional fills, their location and volumes.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-232. U.S. Fuel must determine reclamation soil mass balance needs with a table identifying material types, thickness depths, cut volumes, and catalog any deficit and excess soil amounts by area. Soil mass balances must be correlated with the following: (1) Provide a soil salvage table detailing salvage volume, locations, disturbed acreage, salvage depths, and dates salvaged. (2) Provide a projected substitute topsoil table detailing volumes, locations, disturbed acreage, and salvage depths. (3) U.S. Fuel must delineate soil mass balance information with the soil survey and soil map locations. All soil maps must be updated accordingly and accurately scaled at <1:12,000.

RECLAMATION PLAN
TOPSOIL AND SUBSOIL

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

Analysis:

Coal fines are currently being harvested from Slurry Pond #1. After excavation, the pond area will be regraded according to the reclamation plan. Both these activities will appreciably alter the surface of Slurry Pond #1. Therefore, additional sampling of the newly disturbed and exposed surface materials is required to ascertain the toxic and acid forming properties. The sampled material will be analyzed according to the Division's guidelines for management of topsoil and overburden[1].

As explained earlier, the current environmental resource section has insufficient information to determine accurately if additional quantities of appropriate, excess substitute soils and fill materials exist to help supplement the known soil resources. Based on adequate soil survey information, the MRP needs to project topsoil and substitute topsoil mass balances for reclamation. As explained in the Mine Reclamation Plan (MRP) soils section, surface materials in the upper Railroad Yard and the lower Preparation Plant consist of substitute topsoil materials. From these mass balance calculations, additional excess fills and substitute soils may be located to help offset the need to borrow soil and will lessen the surface-area impact from soil borrow operations.

Information concerning soil borrow areas for past, current and projected reclamation activities needs to be updated both in the MRP and on the soil maps. In addition, soil borrow areas are considered surface disturbance, therefore, soil maps need to show soil borrow areas as part of the surface disturbance.

Soil surfaces outside the disturbance areas adjacent to the slurry ponds are contaminated by wind blown coal fines. The MRP needs to address reclamation of these affected areas and include them within the surface disturbance.

Within the disturbance areas, all coal mine wastes encountered during reclamation need to be identified and placed in a controlled manner to ensure that final disposal will be suitable for reclamation and is compatible with the natural surroundings and post-mining land use. Primary and secondary coal mine waste disposal areas need to described and located on pre-

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[1] Leatherwood, J. and D. Duce. 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.

and post-reclamation maps. Delineate between pre and post law coal waste areas. These areas include, but are not limited to, all stray coal piles, wind blown coal fines, coal waste piles and downcast coal material within the disturbed area boundaries. The Existing Structure Exemption does not apply to existing and new coal mine waste disposal facilities. Disposal needs to be described for all apropos and unanticipated coal mine wastes encountered before and during reclamation, respectively.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-233 and 553.252. U.S. Fuel must conduct additional sampling of the newly disturbed surface materials on Slurry Ponds #1 to ascertain the toxic and acid forming properties. The sampled material will be analyzed according to the Divisions guidelines for management of topsoil and overburden.

R645-301-232.720. (1) U.S. Fuel must identify and utilize in-situ soil resources prior to using borrow site materials. Utilizing any excess fill materials as substitute topsoil supplements will help offset and lessen the impact on soil borrow. (2) Based on mass balance results, they must determine soil borrow amounts by updating and identifying soil-borrow areas accordingly in the MRP and on the appropriate maps.

R645-301-242 and R645-301-140. (1) U.S. Fuel must provide soil reclamation information (i.e. in a table) detailing soil redistribution by location, acreage, needed volumes, average soil thickness, soil source and location. (2) U.S. Fuel must update information concerning soil borrow areas for past, current and projected reclamation activities both in the text and on the soil maps. In addition, soil borrow areas and associated haul roads are considered surface disturbance, therefore, soil maps need to show soil borrow affected areas as part of the surface disturbance.

R645-100-430, R645-301-512.100, R645-301-512.230, R645-301-553.250, and R645-301-542.730. U.S. Fuel must identify all miscellaneous coal and coal waste materials. An appropriate standard needs to be identified for placing these apropos materials in a controlled manner to ensure that final disposal will be suitable for reclamation and post-mining land use. These areas include, but are not limited to, all stray coal piles, wind blown coal fines, coal waste piles and downcast coal materials.

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