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March 2, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor

FROM: Robert Davidson, Soils Reclamation Specialist RAD

RE: February 3, 1998 Response to PAP Deficiency List, Canyon Fuel Company, Dugout Canyon Mine, PRO/007/039-PM97A, Folder #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.

- **December 19, 1997 Finding:**

  The PAP met the minimum regulatory requirements.

  PAP Response:

  Plate 2-2, Disturbed Area Soils Map, has been altered to include operation contours, instead of existing contours.

  Finding:

  R645-301-222.100, R645-301-223, R645-301-141 and R645-301-142, (1) The soils resource map (Plate 2-2, Disturbed Area Soils Map) has operation contours instead of existing contours. Environmental resource information needs to be illustrated with existing contours, not operation contours. Existing contours will accurately represent the existing soil resources and are absolutely critical for assessing soil salvage areas. (2) The disturbed area boundary is missing on Plate 2-2.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

- **December 19, 1997 Finding:**

R645-301-232.700 and R645-301-120, The MRP needs to identify the exact locations where soils will be left-in-place on steep hillsides and which slopes will receive geotextile fabric. Slope angle and cross sections should clearly verify which slopes will receive geotextile fabric. This information is vital for the accurate locations for fabric placement and removal during operations and reclamation.

PAP Response:

All affected soils slated for protection by geotextile that will be negatively impacted during reclamation need to be salvaged prior to construction. Final reclamation plans do not contemplate preserving soils that are protected by geotextile. Inconsistencies exist in the PAP between geotextile fabric placement and reclamation plans. Reclamation cross sections show areas receiving geotextile as being buried under fill. Reclamation discussion states that the channel will be raised, which is consistent with reclamation cross sections. As an alternative to fabric, soil salvage is a viable option. soil salvage efforts need not jeopardize the safety of the site or hillside integrity, provided that salvage efforts are coordinated with culvert installation and fill placement (i.e., placed fills will stabilize the hillsides and will remain in place at final reclamation).

The PAP discussion concerning placement of geotextile remains vague and confusing. Section 231.100, Removing and Storing Soil Methods, references Plate 2-5A for geotextile fabric placement locations. If fabric is placed, exact criteria used for fabric placement needs to be given for locations shown on Plate 2-5A. Appendix 2-5 justifies fabric placement by stating that soil removal from slopes greater than 1.5:1 would jeopardize the slope's natural stability. However, all slopes greater than 1.5:1 within the Riparian area are not delineated on Plate 2-5A. Slopes containing either soil or rock should be labeled for determining which slopes should be salvaged or receive fabric.

Existing contours are needed on Plate 2-5A for visual verification of soil salvage and/or fabric placement areas. Plate 2-5A presents operation contours only. Area configuration is required for representing exact geotextile fabric placement locations on Plate 2-5A.

Finding:

R645-301-232.700 and R645-301-120, (1) All affected soils slated for protection by geotextile that will be negatively impacted during reclamation need to be salvaged prior to construction. Final reclamation plans do not contemplate preserving soils that are protected by geotextile. As an alternative to fabric, soil salvage is a viable option; soil salvage efforts need not jeopardize the

safety of the site or hillside integrity, provided that salvage efforts are coordinated with culvert installation and fill placement (i.e., placed fills will stabilize the hillsides and will remain in place at final reclamation).

(2) The PAP discussion concerning placement of geotextile remains vague and confusing. If fabric is placed, exact criteria used for fabric placement needs to be given for locations shown on Plate 2-5A. Within the planned culvert riparian areas, all slopes greater than 1.5:1 need to be identified on Plate 2-5A with soil and rock expanses shown for delineating which slopes will be salvaged and which slopes will receive fabric.

(3) If Geotextile is used, geotextile placement should be represented by area configuration, rather than a single line which does not show breadth or width for fabric placement.

(4) Plate 2-5A; Existing contours are needed for visual verification of soil salvage and/or fabric placement.

R645-301-120, R645-301-140 and R645-301-230, Plate 2-5A depicts areas where soils will be removed. Areas 1, 2, and part of 3 are outside the disturbed area boundary.

- **December 19, 1997 Finding:**

R645-301-624.220, R645-301-724.300, R645-301-724.500 and R645-301-731.300, Demonstrate the suitability of the imported fill by determining if the fill is acid- and/or toxic-forming.

PAP Response:

No information is given in the PAP submittal.

Finding:

R645-301-624.220, R645-301-724.300, R645-301-724.500 and R645-301-731.300, Demonstrate the suitability of the imported fill by determining if the fill is acid- and/or toxic-forming. Since imported fill is being used within a riparian zone, the residual impacts could be extremely detrimental and have serious implications for reclamation efforts if the imported fill is salt affected, acid-forming, and/or toxic forming.

- **December 19, 1997 Finding:**

R645-301-234.210, (1) Dugout Mine Topsoil Stockpile. As shown, the Dugout Mine topsoil storage area will be located over the leach field pad area. The topsoil stockpile may be adversely impacted because of possible maintenance problems associated with the leach field. Therefore, to avoid possible future disturbance to the stockpile, the stockpile must be placed elsewhere within the permit other than over the leach field.

(2) Dugout Substitute Stockpile located at the Soldier Canyon Mine Stockpile Area. How will access and maintenance of the soil stockpiles at the Soldier Canyon Mine stockpile area be

affected with the location and size of the Dugout Mine substitute stockpile.

PAP Response:

(1) Topsoil and substitute topsoil removed from the Dugout Canyon Mine will be transported and stockpiled at the Soldier Canyon Mine soil stockpile area (see Plate 2-3). Therefore, no soil stockpile will be located at the Dugout Canyon Mine.

(2) This deficiency was not addressed.

Finding:

R645-301-234.210, How will access and maintenance of the soil stockpiles at the Soldier Canyon Mine stockpile area be affected with the location and size of the Dugout Mine substitute stockpile? Each pile must have suitable access without disturbing and/or damaging adjacent soil stockpiles. Suitable access must accommodate heavy machinery and regular maintenance activities.

- **December 19, 1997 Finding:**

R645-301-234 and R645-301-120, Section 231.400 gives the construction, modification, use, and maintenance of the topsoil storage piles. However, the MRP does not state any of the specific technical information associated with the construction of the substitute topsoil stockpile. Additional information is necessary to determine whether the substitute soil and/or topsoil stockpile will contain the necessary volumes of salvaged soil. Cross sections are needed to access outslopes of the stockpiles.

PAP Response:

Plate 2-3 has been modified to illustrate the location and topography of the Dugout Canyon topsoil storage area within the Soldier Canyon Permit Area. No cross sections are provided, however, the PAP states that the maximum outslope will be 2:1. Total soil storage volume is projected to be 17,000 CY. The maximum thickness of the stockpile is not accurately stated (i.e., "approximately 10??? feet).

Finding:

R645-301-234 and R645-301-120, Based on the stockpile's maximum storage volume, the maximum thickness needs to be accurately given. In addition, an accurate projection of the maximum thickness needs to be given based on projected soil salvage volumes from Dugout Canyon.

- **December 19, 1997 Finding:**

R645-301-521 and R645-301-120, (1) The surface facility map (5-2A) does not show the location of the topsoil stockpile.

(2) The Surface Facilities cross section map (5-2B) does not show the following: (A) change in surface topography resulting from soil salvage, and (B) the surface changes associated with

construction and placement of the topsoil stockpile.

PAP Response:

(1 & 2B) Topsoil and substitute topsoil removed from the Dugout Canyon Mine will be transported and stockpiled at the Soldier Canyon Mine soil stockpile area (see Plate 2-3). Therefore, no soil stockpile will be located at the Dugout Canyon Mine.

(2A) The Surface Facilities cross section maps have been modified to show changes in surface topography resulting from soil salvage.

Finding:

The information provided meets the minimum regulatory requirements.

- **December 19, 1997 Recommendation:**

R645-301-234, Vegetation removed from the site during or prior to topsoil stripping should be placed on and in the topsoil stockpile.

PAP Response:

The PAP has been modified to state that some of the vegetation removed during construction may be incorporated into or place on top of the stockpile.

Finding:

The information provided meets the minimum regulatory requirements.

- **Other PAP Responses:**

Plate 2-2 was improved by delineating the actual soil salvage areas. However, soil salvage areas were depicted as "Topsoil Borrow Area." The term "borrow" is an appropriate term for area "#1". However, the term "salvage" should be used for areas 2, 3, 4A and 4B since these areas constitute native or surficially disturbed soils with the designation "TS".

Appendix 2-6 (Topsoil, Substitute Topsoil, and Storage Pile Calculations). "Topsoil may be removed..." was added to the appendix. SMCRA requires that all topsoil "will" be removed prior to construction. Plate 2-2 clearly shows that a good portion of "TS" soil below the pump house and water storage tank area will not be salvaged.

Findings:

R645-301-232.100, (1) In Appendix 2-6, the statement "Topsoil **may** be removed..." was added to the appendix. SMCRA requires that topsoil salvage "will" occur prior to mining for all soils that will be affected by mining activities, including installation of the culvert.

(2) TS soils requiring salvage include those adjacent and extending down alongside Dugout Creek below the pump house and water tank area. Currently, these soils are shown as not being salvaged.

(3) Plate 2-2, soil salvage areas were depicted as "Topsoil Borrow Area." The term "borrow" is an appropriate term for area "#1". However, the term "salvage" should be used for areas 2, 3, 4A and 4B since these areas constitute native or surficially disturbed soils with the designation "TS".

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

- **December 19, 1997 Recommendation:**

R645-301-233, The MRP does not designate the handling or disposal of the imported fills used for culvert installation and pad construction removed during reclamation. If the fills will be used for backfill and/or growth medium, they need to be characterized according to the Division's guidelines for topsoil and overburden. This characterization needs to be performed at the time of reclamation to ensure the suitability of the material.

PAP Response:

Imported fill for pad and culvert construction activities may be used as backfill against highwall and cutslopes, as backfill during portal closure, or as fill for depressions in acheiving AOC. If the imported fill will be used as subsoil, it will be characterized at the time of reclamation in accordance with the Division's Guidelines for topsoil and overburden.

Findings:

The information provided meets the minimum regulatorty requirements for this deficiency.

- **December 19, 1997 Recommendation:**

R645-301-240 and R645-301-120, (1) If the areas of in-place covered topsoil (geotextile) are too steep to remove soil, then how will the topsoil be loosened in revegetation efforts so that it remains on the slope? The reclamation plan is too general without enough detail to ensure reclaimability of the steep slopes with in-place covered soils.

(2) The typical reclamation channel explanation given in the MRP nullifies leaving in-place soils since the reclamation slopes will be altered.

PAP Response:

(1) Section 242.200 states preparation procedures for relieving compacted soils covered by geotextile fabric. However, discussion still remains too general without enough detail to ensure reclaimability of the steep slopes with in-place covered soils. The PAP states that compaction may be relieved by applying Polyacrylamide (PAM), hand raking or other mechanical means to aerate the soil. PAM is proposed for relieving compaction with no references or examples given for proper technique and applications of use. Aeration is only part of the reclamation scenario for reclaiming in-place soils on steep slopes. Soil retention during revegetation efforts is not addressed. Therefore, other technology to ensure reclaimability of the steep, in-place soils needs to be given with references. Reclaimability must be shown.

(2) This deficiency is not addressed.

Findings:

R645-300-133.710, Demonstrate that reclamation as required by the State Program can be accomplished according to information given in the permit application. Aeration is only part of the reclamation scenario for reclaiming in-place soils on steep slopes. Soil retention during revegetation efforts is not addressed. Therefore, other technology to ensure reclaimability of the steep, in-place soils needs to be given with references.

R645-301-240 and R645-301-120, The typical reclamation channel explanation given in the MRP nullifies leaving in-place soils since the reclamation slopes will be altered since final reclamation plans do not contemplate preserving soils that are protected by geotextile. All affected soils slated for protection by geotextile that will be negatively impacted during reclamation need to be salvaged prior to construction.

cc: Joe Helfrich
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