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# State of Utah

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September 8, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor *DAR H*

FROM: James D. Smith, Reclamation Specialist *JDS*

RE: Expanded Topsoil Pile, Canyon Fuel Company, LLC, Soldier Canyon Mine, ACT/007/018-98C, File #2, Carbon County, Utah.

## SUMMARY

A proposed addition to Appendix 2-F, titled "Dugout Canyon Mine topsoil storage area expansion", was received at UDOGM on August 21, 1998. The addition is divided into sections that relate to specific disciplines and correspond with the Chapters of the MRP. This TA covers Sections 6 - Geology and 7 - Hydrology.

## TECHNICAL ANALYSIS

## **ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR Sec. 783., et. al.

## **GEOLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

### **Analysis:**

The surficial geology is briefly described. Reference is made to Section 2 of the proposed addition to Appendix 2-F for information on soils and to Chapter 6 of the Soldier Canyon Mine MRP for geologic information.

**Findings:**

Information in the geologic resource section is considered adequate, by reference to Chapter 6 of the MRP and additional soils information in Section 2 of the proposed amendment, to meet the requirements of this section.

**HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

**Analysis:**

**Sampling and analysis.**

No changes to water sampling or analysis are proposed.

**Baseline information.**

No additional baseline information is needed.

**Baseline cumulative impact area information.**

The proposed modification to the top-soil storage will not require a new CHIA or revision of the existing CHIA.

**Probable hydrologic consequences determination.**

Because of the small area to be impacted, this expansion of the top-soil storage should have no hydrologic consequences beyond those already described in the current MRP. No additional PHC information is included in the proposed amendment.

**Ground-water monitoring plan.**

**Surface-water monitoring plan.**

There is currently no ground- or surface-water monitoring at the top-soil storage area. No modification of the ground- or surface-water monitoring plan is proposed.

A technical analysis was not done for the following subjects because they are not involved in or affected by the proposed amendment.

- **Modeling.**
- **Alternative water source information.**

**Findings:**

Information in the hydrologic resource section is considered adequate to meet the requirements of this section.

**MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

**Analysis:**

**Affected Area Boundary Maps.**

Plate 2-1 and 5-1 show the boundaries of all areas proposed to be affected over the estimated total life of the top-soil storage area.

**Existing Structures and Facilities Maps.**

Location and dimensions of existing areas of existing top-soil storage within the proposed permit area are shown on Plates 2-1 and 5-1.

**Monitoring Sampling Location Maps.**

Locations of soil pits and the 1998 vegetation study area are shown on Plate 2-1. There are no test borings and core samplings. There are no monitoring stations to gather data on water quality and quantity, fish and wildlife, and air quality.

**Permit Area Boundary Maps.**

The boundaries of land within the proposed permit area for the top-soil storage area. Are shown on Plates 2-1 and 5-1.

**Surface and Subsurface Manmade Features Maps**

Current and proposed top-soil storage areas are shown on Plates 2-1 and 5-1. Roads are shown on these maps. There are no major electric transmission lines, pipelines, and agricultural

drainage tile fields.

### **Surface Water Resource Maps.**

There are no water-supply intakes for current users in the area of the top-soil storage areas. There will be no point-source discharges from affected areas. Locations of surface drainages and culverts are on Plates 2-1 and 5-1.

### **Contour Maps**

Plates 2-1 and 5-1 adequately represent the existing land surface configuration of the proposed disturbed area.

A technical analysis was not done for the following maps, plans, and cross sections of resource information because they are not involved in or affected by the proposed amendment.

- **Archeological Site Maps.**
- **Coal Resource and Geologic Information Maps.**
- **Existing Surface Configuration Maps.**
- **Cultural Resource Maps.**
- **Mine Workings Maps.**
- **Subsurface Water Resource Maps.**
- **Surface and Subsurface Ownership Maps.**
- **Vegetation Reference Area Maps.**
- **Well Maps**

### **Certification**

Plates 2-1 and 5-1 are certified by a registered professional engineer.

### **Findings:**

Maps, plans, and cross sections of resource information are considered adequate to meet the requirements of this section.

## **OPERATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

#### **Analysis:**

##### **Ground-water monitoring.**

##### **Surface-water monitoring.**

##### **Water quality standards and effluent limitations.**

There is no monitoring of surface or ground water at the top-soil storage area. No changes to water sampling or analysis are proposed. There is no UPDES discharge.

##### **Acid and toxic-forming materials.**

Acid- and toxic-forming materials will not be stored at this site (p.13, Appendix 2-F).

##### **Diversions.**

An irrigation ditch passes between the current top-soil storage area and the proposed top-soil storage area. A 48-inch culvert, the same diameter as the culvert that carries the ditch under nearby State Road 53, will be placed in the ditch to allow flow to continue during construction, operation, and reclamation. There are no flow data for the ditch and no calculations to show this culvert is adequate to carry expected ditch flows.

##### **Perennial and intermittent streams; Stream buffer zones.**

There are no streams in the top-soil storage area.

##### **Miscellaneous flows.**

There are no ground-water discharges or ephemeral streams in the top-soil storage area. An irrigation ditch passes through the proposed top-soil storage area. There are no data on flows in this ditch.

**Sediment control measures.**

Sediment control will be through establishment of vegetation, as described in Section 3 of proposed Amendment 2-F, and by construction of a berm from topsoil from the top-soil stockpile area. The berm will be constructed in compacted lifts approximately 2-feet thick to a maximum height of 3.3 feet. The berm is designed to contain runoff anticipated from a 100-year 6-hour storm. However, the design calculations and other details of the berm construction are not in the proposed amendment.

Neither the proposed top-soil storage expansion nor the existing top-soil storage area are identified as an Alternate Sediment Control Area (ASCA) on the maps.

**Siltation structures.**

**Sedimentation ponds.**

**Other treatment facilities.**

**Exemptions for siltation structures.**

There is no point-source discharge from the top-soil storage area. There is no sedimentation pond or other treatment facility. There is no point-source discharges. There are no impoundments, banks, dams, and embankments.

A technical analysis was not done for the following subjects because they are not involved in or affected by the proposed amendment.

- **Transfer of wells.**
- **Discharges into an underground mine.**
- **Gravity discharges.**
- **Casing and sealing of wells.**
- **Discharge structures.**
- **Impoundments.**
- **Casing and sealing of wells.**

**Findings:**

Hydrologic information in the operation plan is not considered adequate to meet the requirements of this section. Prior to approval the permittee must provide the following information:

**R645-301-742.332** - There are no flow data for the irrigation ditch and no calculations to

show the 48-inch culvert is adequate to carry expected ditch flows.

**R645-301-742.120** - design calculations and other details of the berm construction are not in the proposed amendment.

## **MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### **Analysis:**

#### **Mining facilities maps.**

Neither the proposed top-soil storage expansion nor the existing top-soil storage area are identified as an Alternate Sediment Control Area (ASCA) on the Plates 2-1 and 5-1.

A technical analysis was not done for the following maps, plans, and cross sections of mining operations because they are not involved in or affected by the proposed amendment.

- **Affected area maps.**
- **Mine workings maps.**
- **Monitoring and sample location maps.**

#### **Certification Requirements.**

Plates 2-1 and 5-1 are certified by a registered professional engineer.

### **Findings:**

Maps, plans, and cross sections of mining operations are not considered adequate to meet the requirements of this section. Prior to approval the permittee must provide the following information:

**R645-301-752** - neither the proposed top-soil storage expansion nor the existing top-soil storage area are identified as an Alternate Sediment Control Area (ASCA) on the maps.

## **RECLAMATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

#### **Ground-water monitoring.**

#### **Surface-water monitoring.**

There is no monitoring of surface or ground water at the top-soil storage area. No changes to water sampling or analysis are proposed.

#### **Acid and toxic-forming materials.**

Acid- and toxic-forming materials will not be stored at this site (p.13, Appendix 2-F).

#### **Water quality standards and effluent limitations.**

There is no UPDES discharge.

#### **Diversions.**

An irrigation ditch passes between the current top-soil storage area and the proposed top-soil storage area. A 48-inch culvert, the same diameter as the culvert that carries the ditch under nearby State Road 53, will be placed in the ditch to allow flow to continue during construction, operation, and reclamation. There is no clear plan for removal of the culvert as part of the site reclamation.

#### **Stream buffer zones.**

There are no streams in the top-soil storage area.

#### **Sediment control measures.**

#### **Siltation structures.**

#### **Sedimentation ponds.**

**Other treatment facilities.**

**Exemptions for siltation structures.**

There is no point-source discharge from the top-soil storage area. There is no sedimentation pond or other treatment facility. There is no point-source discharge. There are no impoundments, banks, dams, and embankments.

A technical analysis was not done for the following subjects because they are not involved in or affected by the proposed amendment:

- **Transfer of wells.**
- **Discharges into an underground mine.**
- **Gravity discharges.**
- **Discharge structures.**
- **Impoundments.**
- **Casing and sealing of wells.**

**Findings:**

Hydrologic information in the reclamation plan is not considered adequate to meet the requirements of this section. Prior to approval the permittee must provide the following information:

**R645-301-742.313** - there is no clear plan for removal of the 48-inch culvert in the irrigation ditch that passes between the current top-soil storage area and the proposed top-soil storage area.

**MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

**Analysis:**

**Bonded area map.**

At this time there has been no change to the bond for the Soldier Canyon Mine as a result of this proposed amendment.

A technical analysis was not done for the following maps, plans, and cross sections of reclamation operations because they are not involved in or affected by the proposed amendment.

- **Affected area boundary maps.**
- **Reclamation backfilling and grading maps.**
- **Reclamation facilities maps.**
- **Final surface configuration maps.**
- **Reclamation monitoring and sampling location maps.**
- **Reclamation surface and subsurface manmade features maps.**
- **Reclamation treatments maps.**

**Findings:**

Maps, plans, and cross sections of reclamation operations are considered adequate to meet the requirements of this section.

## **CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT**

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

The Division has prepared a CHIA for the Soldier Canyon and Dugout Canyon Mines. The proposed modification to the top-soil storage will not require a new CHIA or revision of the existing CHIA.