



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

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

May 7, 2001

TO: **Internal File**

THRU: Gregg A. Galecki, Project Team Lead *AG*

FROM: *WB* Priscilla W. Burton, Soils Reclamation Specialist

RE: Leach Field, Canyon Fuel Company, LLC, Dugout Canyon Mine, C/007/039-AM01A

SUMMARY:

Canyon Fuel Co. has submitted an amendment to their MRP to construct a leach field approximately 1.25 miles southeast of the Dugout Mine. The leachfield will be located along the Dugout Canyon road in the W ½ NW ¼ NW ¼ of T13S, R12E on a triangular tract of land between Dugout Creek and an unnamed ephemeral drainage. A pipeline will convey gray water from the mine to the leach field. The pipeline will be buried in the county road drainage ditch. The pipeline corridor is not proposed to be included in the disturbed area. This submittal adds 2.55 acres to the disturbed area within the permit. Of the 2.55, approximately 1.8 acres will be disturbed by this construction, the remainder will be held in reserve.

TECHNICAL MEMO

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

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

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220;
R645-301-411.

Analysis:

The site is at 6,715 feet elevation on an alluvial fan. The slope is 6 – 8 %. The average annual precipitation is 12 – 14 inches. The location is in a pinyon-juniper community. An Order I soil survey (found in Attachment 2-1) was conducted by Mr. Dan Larsen, Soil Scientist with Environmental Industrial Services.

Two soil test pits were dug at the site in October 1999. A third pit was dug in the reserve* location in May 2000. The pit locations are shown on the Soil Description Location Map in Attachment 2-1. Mr. Larsen describes the soil as Map Unit 50, Haverdad loam, moist, 1 to 5 percent slopes. The soil descriptions are found in Appendix S3 of Attachment 2-1. The SCS classification of the soil is as a fine-loamy mixed (calcareous), mesic Ustic Torrifluvent. An SCS description of the soil type is provided in Attachment 2-2, not Attachment 2-1 as the page divider incorrectly states.

Samples were taken of the soil adjacent to the soil test pits six months after the soil test pits were dug. These results are found in Appendix S-2 of Attachment 2-1. The three locations are represented by composite samples taken at intervals throughout the profile down to 80 inches (6.5 feet).

The soil is a deep, Haverdad loam with five percent or less coarse fragments in the upper 45 inches and no more than 25% below 45 inches. Most of those coarse fragments are less than 3 inches in diameter. Roots are generally in the upper 20 inches. For the purposes of reclamation, the soil is suitable.

* Attachment 5-1, Leachfield Plans and Specifications, page 3, requires enough land to develop a second complete seepage trench system (Reserve Area).

Findings:

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with

R645-300-133.100, Correct the page divider for the SCS Soil Description to read Attachment 2-2.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Removal and Storage

Before topsoil removal, vegetation will be removed and burned (page 2-6, Chapter 2) from the entire 1.8 acre area. (A permit from the County must be obtained for this purpose.) Clearing the vegetation within the disturbed area boundary should still allow for a visual vegetation screen between the County Road and the disturbed area boundary. The Division recommends that a portion of the vegetation is not burned, but put towards a useful end, such as mulching or creation of habitat and shelter for animals.

After clearing the vegetation, an eight- inch topsoil layer will be removed from the 1.8 acre site (colored blue on Plate 7-2), generating approximately 790 cubic yards of material (page 2-4). This topsoil will be temporarily stored in a stockpile, to be redistributed immediately after construction (location shown on Figure 2-1, page 2-1 of Chapter 2). The stockpile will be protected by berms and a silt fence (page 2-9, Section 234.200). The location of the stockpile is indicated on Figure 2-1.

According to Mr. Gary Taylor¹ the exact area to be covered by the soil stockpile is not indicated by the map. By Division calculations, the 790 cu yds (21,330 cu ft) of topsoil to be generated will require an area at least twice the size noted on the map (i.e. for a ten foot deep pile, an area of 50 X 50' would be necessary). The location noted on the map cannot be expanded without crossing into the undisturbed area. Further description of the topsoil stockpile dimensions and temporary storage location are requested.

¹ Telephone conversation between Mr. Gary Taylor and Priscilla Burton on May 3, 2001.

TECHNICAL MEMO

Mr. Taylor also indicated that the size of the construction zone (40,000 sq ft) would not be as large as the 1.8 acre disturbed area. At this time, the Division is not certain whether the topsoil would be removed from the entire disturbed area or from the zone of construction. Further clarification of the area of topsoil removal is requested.

Section 222.400, page 2-3, indicates that the eight to twenty inch layer of subsoil will be mixed in with all the soils excavated from the six foot trenches. Attachment 5-1, Leachfield Plans and Specifications, indicates on pages 3 that each seepage trench will be excavated to a depth of seven feet. Then, five feet of gravel will be placed in the trench and two feet of soil will be replaced on top.

Soils from each trench (from eight inches to seven feet deep) will be mixed and graded on the surface. The volume of soil excavated from each lateral will be

$$(180' \text{ long} \times 2' \text{ wide} \times 7' \text{ deep}) = 2,511 \text{ cubic feet}$$

$$7 \text{ laterals} \times 2,511 \text{ cu ft} = 17,577 \text{ cu feet soil.}$$

Approximately 1,674 cu ft of this material will have been removed from the area of each lateral in the first 8-inch lift and segregated as topsoil. Therefore, there is an excess of approximately 15,903 cu ft to grade over the surface. The actual disturbed area is approximately 1.8 acres (Attachment 2-1) therefore, the 15,903 cu ft of subsoil would cover the 1.8 acres ((78,408 sq ft) to a depth of 0.2 feet (2 inches) above the original surface. However, after discussing this with Mr. Gary Taylor, it became apparent that the excess spoil would not be graded over the entire 1.8 acres, but only over the construction zone of 40,000 sq ft. Therefore, the depth of the additional material will be 4.8 inches.

The recommendation of the soil consultant, Mr. Dan Larsen, was that "Soil handling activities should consider retaining natural soil layer sequence although some soil mixing should not be detrimental." The four to five inch layer of the C horizon over the Bk1 horizon will not be detrimental to vegetation as long as the C horizon does not create a calcic hard pan. These lower C horizon soils were massive, hard and high in calcium carbonates. The Division recommends ripping the soil surface after grading of the excess spoil to a depth of 8 inches to turn the C horizon into the Bk1 horizon before replacement of the topsoil.

What will the procedure be for laying the sewer pipe from the septic tank to the Dugout Canyon Road within the surface facilities area? Will additional topsoil be generated?

A minor edit is required on page 2-5 of the submittal, where under Section 232.500 the reader is referred to Section 231.400. This is incorrect. The reader should be referred to Section 222.400 for information on subsoil segregation.

Findings:

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with

R645-300-133.100 Edit page 2-5 of the submittal to refer the reader to Section 222.400 for further information about subsoil segregation and edit page 2-3 to correctly state that seven foot trenches will be dug.

R645-301-244, Please obtain a permit from the County to burn vegetation. Please consider utilizing a portion of this scrubbed vegetation as mulch to protect the soil from wind erosion during plant establishment and for habitat creation.

R645-301-234, Provide further description of the topsoil stockpile dimensions and storage location.

R645-301-231.100, Outline on a map the area of topsoil salvage and replacement and provide a figure in acres of topsoil salvage and replacement.

R645-301-242.200, Rip the ground to a depth of eight inches after grading and before topsoil replacement.

R645-301-230, Describe the operation plan for laying the sewer line from the septic tank through the mine operations area to the dugout canyon road ditch.

RECLAMATION PLAN

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

Drawing 5 of Attachment 5-1 shows the current and final surface configurations for the leach field site. The sewer pipeline and leach field piping and concrete boxes will remain in place in perpetuity (Section 553.200). Reclamation will occur immediately after construction.

TECHNICAL MEMO

Findings:

The information provided in the proposed amendment is considered adequate to meet the requirements of this section.

TOPSOIL AND SUBSOIL

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

Analysis:

The submittal indicates on page 2-10 that 200 lb/ac of 16% Nitrogen and 16% Potassium will be applied to the redistributed soil. The addition of soil nutrients is not desirable for reestablishment of vegetation in this arid environment. The Division has observed that the use of fertilizer generally promotes a flush of weed growth to the detriment of the native species. As reported in Appendix S2 of Attachment 2-1, nitrogen and phosphorus levels in the soil are adequate for native species.

Findings:

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with

R645-300-243, The use of nitrogen and potassium fertilizer described in Section 243 should be eliminated.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

During construction, sediment control will consist of silt fences (Section 553.100). Berms, surface roughening and seeding for contemporaneous reclamation of the site will control runoff in the long term. The seeding that occurs immediately after construction will be with the final seed mix. The site will not be redisturbed.

Findings:

The information provided in the proposed amendment is considered adequate to meet the requirements of this section.

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

PRIME FARMLAND

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-300 et seq.

Analysis:

The soils in the vicinity of the Dugout Canyon Mine permit area were surveyed in 1980 (Appendix 2-1 and page 2-2 of Section 221). At that time, the SCS determined that prime farmland was located along the Soldier Canyon Road in the East ½ of Section 1 and East ½ of Section 12 both in T14S, R11E.

The leachfield is located along the Dugout Canyon road in the W ½ NW ¼ NW ¼ of T13S, R12E. Although the soils in the vicinity of the leach field are Haverdad Loam, the lack of irrigation water and lack of historic use for farming precludes a designation of prime farmland.

Findings:

The information provided in the proposed amendment is considered adequate to meet the requirements of this section.

RECOMMENDATION:

The amendment should not be approved in its present form.