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

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January 16, 2002

TO: Internal File

THRU: Stephen J. Demczak, Sr. Reclamation Specialist/Engineering, Team Lead

FROM: Priscilla W. Burton, Sr. Reclamation Specialist/Soils

RE: Gilson Well, Canyon Fuel Company, LLC., Dugout Canyon Mine, C/007/039-01H-1

SUMMARY:

Canyon Fuel Co., LLC has submitted a proposal to drill a well 450 feet from the water tanks along the east side of the water tank access road. The well will be 300 feet in depth and will intercept water collecting in the Gilson seam. The drill pad will be fairly level, adjacent to and even with the roadway, extending five feet into the existing stream channel. A retaining wall for the pad will stand fifteen feet from the channel to the pad surface (see Dwg G-346 and GE4B001 in Chapter 5).

The proposal will require relocation of the west fork of Dugout Creek for a stretch of about 50 feet. A stream alteration permit has been obtained from the Division of Water Rights. The alteration permit expires on November 19, 2002.

The application for the Gilson Seam Well was first reviewed by the Division under AM99G on January 14, 2000. The application was withdrawn and resubmitted on August 4, 2001 and given the file number AM01H. The first technical review was dated October 19, 2001 and a response to deficiencies was received on December 4, 2001.

TECHNICAL ANAYLSIS:

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 well disturbance is 450 below the water tanks along the water tank access road as shown in Drawings G-346 and GE4B001. The concrete pad for the well site will cover undisturbed soil and a rock outcrop. The plan states that the well site will cover 2000 sq. ft. of undisturbed soil that "lies in a stranded flood plain bench above the stream at the toe of a colluvium covered slope (App 2-8, p ii)." The disturbance will be approximately 30 feet from the realigned stream (see Drawing GE 4 B001).

Chris Hansen, EarthFax Engineering, Inc., gathered the soil resource information. A qualification statement for performing the Dugout Canyon soil survey and a personal résumé are provided in Appendix 2-3, Soil Test Pit Logs.

One soil pit was dug to a depth of five feet. The results of soil analysis for test pit 17 are shown in Table 2-1. The submittal also contains Attachment A, "Technical Field Visit Report"; Attachment B, Exhibit A of Appendix 2-8, "Soils Map – Gilson Water Well Site"; and Attachment C, "Soils Log for Test Pit TP-17"; and Attachment D, "TP-17 Soil Samples" Laboratory Data Sheets from Inter-Mountain Laboratories in Sheridan, Wyoming.

Soils of the site are represented by test pit 17 which is shown on Exhibit A of Appendix 2.8 and described in Table 2-1. The soils are sandy loam with 19% coarse fragments in the surface 1.7 inches. The coarse fragments drop to less than 1% for the next 44 inches and then rise to 4.7%. A buried "Bb1" horizon is found at 29.5 inches. The texture of the 29.5 to 31.0 inch buried "Bb1" horizon is loam. The buried "Bb1" horizon has better properties than the surface topsoil horizon i.e. 9.3 Available Water-Holding Capacity (AWC) compared with less than 5 AWH and saturation percentage of 43.6% compared with less than 33.2%. Below this narrow band of loam is sandy clay loam to a depth of 60 inches.

The Third Order Carbon Co. Survey (SCS, 1988) places the soil in the Rock Outcrop Rubbleland-Travessilla Complex. Mr. Hansen identifies the soil after sampling as TS soil which is described on Plate 2-2 as "native or surficially disturbed soil" and on page 2-5 of the MRP as "loamy mixed Typic Haploboroll." As described, the TS soil appears to have approximately 30% gravel size rock fragments throughout the profile. Cobbles and sand increase in the "C" horizon (from 28 inches downward).

From what has been presented in the plan, the soil in test pit 17 is similar to the TS soil in that it has a neutral pH and low EC and SAR values. However, it has a much finer texture than the TS soil and does not possess the characteristic coarse fragments of the TS soil.

Perhaps the best description of the TS soil is found in the Dugout Mine TA:

The undisturbed soils were identified by the Order-I survey as part of the SCS listed soil unit Datino Variant complex, and were given the distinction "Soil Type TS." According to the SCS Carbon County soils survey, the Datino Variant soil complex is characterized as very deep, well drained, moderate permeable soils on mountain slopes being formed in colluvium derived dominantly from sandstone and shale. The SCS survey defines Datino Variant soils as loamy-skeletal, mixed Typic Haploborolls. The typic subgroup of Haploborolls[1] is defined as freely drained soils with a moderately thick brownish mollic epipedon. Typic Haploborolls were formed in alluvium during the late-Pleistocene or Holocene ages, do not have a shallow lithic (stone) contact, and do not have deep wide cracks in most years. The USDA handbook further states that where slopes are suitable, Haploborolls are mostly under cultivation.

Undisturbed TS soils, as represented by soil test pits TP-1, 4, 5, 6, 7, 8, 9, 14, and 14A, are found on both sides of Dugout Creek in the northeastern portion and in the southwestern portion of the facilities area. The TS soils are found in flat lying areas and on slopes with grades up to 40 percent or more. The soil supports vegetation consisting of sage, cottonwood, gambel oak, grass, pinyon, and fir. Information condensed from soil test pit TP-4, TP-6 and lower sections of pit TP-1 show soil horizons O1 (1 inch), A1 (1 to 5 inches), B2 (5 to 14 inches), B3 (14 to 28 inches), and C (28 inches to 9 feet). Portions of TP-5 and TP-8 soil profiles appear to have been reworked by Dugout Creek; the upper four feet of TP-1 soil profile appear disturbed. Undisturbed Type TS soils have acceptable physical and chemical characteristic results consistent with requirements outlined by DOGM's soil and overburden guidelines as recorded in Table 2-1.

Other undisturbed soils located within the Disturbed Area Boundary and described by the SCS soils Order-III survey include Croydon loam, Comodore-Datino Variant complex, and Rock Outcrop-Rubbleland-Travessilla complex soils.

Findings:

The information provided is adequate for the purposes of the Environmental Soils Resource requirements of the Regulations.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

The application includes an approval letter dated September 14, 1999 from the State Engineer to change the point of diversion of 2.3 cfs of water from a point located in Section 3 of

[1] Soil Conservation Service, U.S. Department of Agriculture, Agriculture Handbook No.436, pp 288-289.

T14S, R12E (downstream from the mine and leachfield) to the Gilson well site (App. 7-1). Apparently, the Dugout Mine diverted the water for supplemental irrigation of 605.7 acres and for stock watering of 810 cattle from April 1 to September 30. This former use of water was not divulged in the Mining and Reclamation Plan Application.

The prime farmland determination letter is found in Vol 2 of the Permit in Appendix 2-1. It refers specifically to Field 1 that is in Section 1 T14S, R12E that the access road bisects. Page 2-2 of the MRP indicates that during the permitting process for the SagePoint Dugout mine areas of potential prime farmland were identified outside of the Dugout Canyon permit area, near the mouth of Soldier Creek Canyon. No prime farmland was identified in Dugout Canyon.

Findings:

The information provided is adequate to make a determination that Prime Farmland is not affected by the mining operation as required by the Regulations.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Removal and Storage

Soil will be salvaged to a depth of thirty-one inches at the Gilson Well site. The "O","A", "B", and "C" horizons will be combined. The buried Bb1 horizon will be salvaged. An estimated 191 CY will be salvaged and transported to the soil storage yard at the Soldier Canyon Mine (Table 2-2 and Appendix 2-8, Gilson Well Site Soils Study and Soil Volume Calculations). The soil will be stabilized with the interim seed mix described in Section 341.200 of the MRP. The mix includes Indian ricegrass, western wheatgrass, slender wheatgrass, thickspike wheat grass and alfalfa.

Approximately 1568 cu yds of topsoil was removed from the main channel during initial culvert installation (page 2-33 Section 233.200). This channel soil was separately handled to preserve it for use during reclamation in the channel. Area 5 soils (shown on Plate 2-2) were mentioned in Section 231.100 as being the source of the channel soils, but Area 5 soils are not represented in Table 2-2.

Procedures for soil handling in the vicinity and the altered stream channel are described in Appendix 2-8, Gilson Well Site Soils Study and Soil Volume Calculations. The "O","A", "B", and "C" horizons will be removed to an average depth of 31 inches, following procedures described in the following sections of the MRP for stream channel soils: topsoil removal and

segregation (section 231.100, except that the Gilson seam soil A horizon will not be segregated) and storage (Section 232.100) and protection (section 234) and redistribution (section 242.100 and 242.200). All horizons will be removed and stored together at the Dugout Canyon Mine soil stockpile located at the Soldier Canyon Mine. The salvaged soil from the well disturbance will be stored separately from other soils at the Soldier Canyon Mine topsoil stockpile area.

Findings:

The information provided is adequate to meet the Operational topsoil and subsoil requirements of the Regulations.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The report from the technical site visit dated 6/22/99 indicates that the area is riparian in nature. The plan states on page 7-82 that the stream channel will be permanently relocated. As Builts will show the final location of the stream channel. Reclamation procedures and treatments are described in Section 341 for riparian areas during construction (page 3-48).[2]

Seed mix no. 2 will be used in the riparian areas that are shown on Plate 3-1A. Plate 3-1A has been updated to show the Gilson well as a riparian area and therefore receiving riparian area reclamation treatments. Page 3-48, Section 352 indicates that the area will receive riparian treatments.

Findings:

The information provided is adequate for the Reclamation Plan Protection of Fish, Wildlife and Related Environmental Values section of the Regulations.

[2] Personal communication between Priscilla Burton and Vickie Miller, Environmental Engineer for the Dugout Mine on 01/08/2002.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

Page 2-40 indicates that 18-inches of topsoil will be returned to the well site at reclamation. Volume calculations are found in Appendix 2-8.

Findings:

The information provided is adequate for Reclamation topsoil and subsoil requirements of the Regulations.

STABILIZATION OF SURFACE AREAS

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

Analysis:

No specific information was supplied with this application. The Permittee is required to follow the Mining and Reclamation Section 244 for soil stabilization.

Findings:

The information provided is adequate for Reclamation Stabilization of Surface Areas requirements of the Regulations.

RECOMMENDATIONS:

The Gilson seam well development is recommended to proceed. The Permittee should be reminded in an approval letter of the requirement to prevent contamination of all stored topsoil. i.e. Cheat grass must be controlled.

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