0030

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

OK

July 17, 2007

TO: Internal File

FROM: Priscilla W. Burton, CPSSc, Environmental Scientist III PWB by an

RE: Degassification Volume -- Add Wells G-18, G-31 and AMV Road, Canyon Fuel Company, Dugout Canyon Mine, C/007/0039, Task ID #2828

SUMMARY:

Attachment 2-1 of the **Methane Degassification Volume** of the MRP contains baseline survey information gathered from well sites. The well sites G-18 and 31 were surveyed in May 2007. These sites are located northeast of the Pace Canyon Fan Portal in Sec 20 of T13 S., R.13 E (Table 1.1, Figure 1-1, and Plate 1-4). Together degas well sites 18 and 31 and the access road will disturb an additional 20.45 acres (Table 1.2), although the accuracy of the acreage given for site G-18 is questioned in this memo. With this amendment, the total disturbed acreage for all degas wells is 48.05 acres. This figure includes the 14 acres constructed road.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

Right of Entry information is found in the MRP Section 114 and Appendix 1-1. Federal Lease U-07064-027821 has been increased by 40 acres to include the NW ¼ NW ¼ of Sec. 21 T. 13 S., R. 13 E. A BLM Lease modification document was not available for inclusion into the MRP, but will be included when received. The Permittee must update the right of entry information in Appendix 1-1 of the MRP when the modified BLM Lease U-07064-027821 is received (see **R645-301-114.100**). The MRP tabulates the lease acreage to be 2,456.14 acres.

The Surface Owner Agreement between the Thayn Trust and Canyon Fuel Company is included in Appendix 4-2 of the MRP. The agreement will expire in 2019. Attachment 5-3 provides a letter from Arkland Co. to the landowner requesting concurrence with the AWM road construction as described in the amendment. Please indicate whether that concurrence was received. [07202007]

Plates 7-1 and 7-2 show the location of a jeep trail on Gil L. Conover's land that is used to access the monitoring locations in the federal lease U-07064-027821. Appendix 4-4 provides documentation for the use of the trails. Mr. Conover is listed as an affected owner and his address is provided in Section 112.500 of the MRP.

Findings:

The information in the proposed amendment does not meet the requirements for approval.

R645-301-114.100, Attachment 5-3 provides a letter from Arkland Co. to the landowner requesting concurrence with the AWM road construction as described in the amendment. Please indicate whether that concurrence was received.

ENVIRONMENTAL RESOURCE INFORMATION

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

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

Together degas well sites 18 and 31 and the access road will disturb an additional 20.45 acres (Table 1.2), although the accuracy of the acreage given for site G-18 is questioned in this memo. With this amendment, the total disturbed acreage for all degas wells is 48.05 acres. This figure includes the 14 acres constructed road.

Findings:

Information provided in Volume 1 requires an update.

R645-301-121.100, Please update the surface disturbed acreage described on page 1-9 of Volume 1 to include sites G18, G19, G31 and the AWM road.

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:

Appendix 2-2, Volume 1 of the MRP provides a general outlook on the soils of the Book Cliffs in the vicinity of the Dugout Mine. Figure 1-1 and Plate 1-4 (**Methane Degassification Amendment Volume**) shows the location of the degas wells. Table 1-1 provides locations of the wells and Table 1-2 states each well's acreage. Total acreage for the well sites G-1 through G-17 comes to 24.85 acres Together degas well sites 18 and 31 and the access road will disturb an additional 20.45 acres (Table 1.2), although the accuracy of the acreage given for site G-18 is questioned in this memo. With this amendment, the total disturbed acreage for all degas wells is 48.05 acres (Division calculation). This figure includes the 14 acres of constructed road. [07202007]

The specific soils information for degasification well sites G-2 through G-19 and G-31 is found in Attachment 2-1 (**Methane Degasification Amendment**) of the MRP. (Sites G-1 and G-8 were not developed.) A deficiency on the soil survey information has been written for sites G18 and G31 and the road. Laboratory information was received for sites G18, G31 and points that may be along the access road, but these sample locations were not identified.

Baseline soil chemistry information for soils at sites G-2 through G-7 was collected at the time of disturbance (Attachment 2-1), all subsequent sites were surveyed and soil analyzed prior to disturbance. The following parameters were analyzed: texture (particle size analysis), pH, Electrical Conductivity, Sodium Adsorption Ratio, percent $CaCO_3$, plant available Nitrogen, Potassium, and Phosphorus (Section 243). Soil sample analyses are found in Attachment 2-1.

The sites are located at approximately 7,400 to 8,900 ft (see Fig 1-1 and Plate 1.4). The site descriptions, drawings, and photographs are in Attachment 2-1. Some of the sites were previously disturbed by logging (Table 3-1, pg 3-16, Attachment 2-1 section 4.3), previous exploration or road construction (sites G-6, G-9, G-11, G-12, G-14, G-15, G-16, G-17, G-19).

Site descriptions, sketches, profiles, and soil analyses are in Attachment 2-1 for sites G-2 through G-17. A deficiency has been written concerning the lack of site sketch, or soil map, or location of soil samples for sites G18 and G31 and the road.

Findings:

The information provided does not meet the requirements of the Regulations. The Permittee must provide the following in accordance with:

R645-301-222, The Permittee must provide soil consultants credentials for soil taxonomic work. •The Permittee must provide a map with a scale of 1:12,000 showing the soil survey of the site and the GPS locations of test pits. •For each pit, which is dug less than the usual 5 ft. depth of the solum, the soil report must indicate depth to lithic contact or that state bedrock was not encountered, but provide a rationale for a lesser soil pit depth. • The soil descriptions found in App. B of Attachment 2-1 must include details for each horizon such as percent rock fragments, reaction (soil pH), effervescence, evidence (if any) of carbonate concretions or mottling and soil texture following the Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. 1998 Field Book for Describing and Sampling Soils. Natural Resources Conservation Service, USDA, National Soil Survey Center, Lincoln, NE. •The soils report must include a sketch of the pad sites illustrating the location of the soil pit in relation to the whole site and showing previously disturbed areas, rock outcrops, and dissimilar soil inclusions in the site landscape. •For the roadway, the soil survey should include the location of the soil pits along the proposed road and should provide information such as patterns of occurrence of rock outcrops, different soils (or inclusions) within the map unit, and their proportionate extent along the proposed roadway.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Topsoil Removal and Storage

Sites G-8 through G-19 and G-31:
[07202007]

Site configurations are provided in Attachment 5-1. Disturbed acreage for each well site is tallied in Table 1-2, with an additional 14 acres disturbed for road construction noted below Table 1-2. Topsoil salvage areas vary from 0.32 acres at site G-6 to 4.7 acres at site G-18 (Table 1-2).

Topsoil removal volumes are listed in Table 2-1 and Section 222.400 and Attachment 2-2. Stripping depths should vary from site to site based upon the soil evaluation at each site. Topsoil will not be salvaged from beneath the topsoil storage areas. Topsoil stockpile volumes are provided in Table 2-1 and approximate dimensions are listed in Table 2-2. Stockpiles are constructed against the slope, therefore height measurements reflect the original ground surface. Stockpiles for sites G-11 and G-12 will be constructed with 1.5h:1v side slopes (Attach. 2-2). Stockpiles at G-19 will be of two types: 1) long and low along a pre-disturbed roadway and 2) an extremely steep stockpile against the highwall at the pad site (Table 2-2 and Attachment 2-2). Figure 1 of Attachment 5-1 indicates the pad stockpile will be placed in a right triangle shape, against a 40 ft highwall, with a base of 30 ft (and 125 ft long). Given these dimensions, the Division understands that the outslope will be steeper than 1h:1v and that this slope will run for approximately 50 ft.

Erosion control methods for all stockpiles will include creation of stable slopes (ordinarily no steeper than 2h:1v), a berm around the base of the stockpile, surface gouging of the pile face and seeding with seed listed in Table 3-2.

At some pad sites, stockpile slopes steeper than 2h:1v have been created temporarily. The steeper stockpile slopes allow for less disturbed area, but create difficult conditions for vegetation establishment. These steeper slopes are temporary and will be reduced during contemporaneous reclamation of the drilling pad sites. A projected date for contemporaneous reclamation of each sites is provided in the table in Attachment 5-2.

Subsoil will be excavated for use as berms and to create a mudpit at each site (Sec. 231.100, Methane Degassification Volume).

SITES 18, 31, and AMV Access Road:

An estimated 15,986 yd3 will be stockpiled during construction of the road and pads 31 and 18 (Table 2-1). Six topsoil stockpile locations are shown along the AMW road and at the pad sites on Plate 1 of Attachment 5-4. Volume calculations for the stockpiles are provided in Attachment 2-2. The application should also include cross-sections and profiles for these stockpiles, such that the placement against road cuts or on road outslopes can be evaluated for stability.

Findings:

The information provided does not meet the requirements of the Regulations. Prior to approval, the following information should be verified:

R645-301-121.200, Verify the 4.7 disturbed acres listed for site G-18 shown in Table 1-2 with the volume of topsoil listed for the same site in Table 2-1. • Some statement in the narrative are overreaching, please correct the narrative in Section 222.400 that states "detailed soil series descriptions are presented" to indicate the Order III Map designations were evaluated or verified.•Correct the statement in Section 222.400 that "test pits appear to generally correlate to the NRCS soil series map" to read "correlate to the NRCS Order III Map Units."•Add the word "using" to the last sentence in Section 223 as follows, "and **using** the USDA/NRCS WEB Soil Survey utility."

R645-301-231.400, Table 2-2 places topsoil stockpiles 4 and 5 at site G-18, whereas Plate 1 places these two stockpiles at site G-31. Please clarify this discrepancy.

R645-301-234.210, To demonstrate stability of the topsoil locations, the Division requests cross sections and profiles of the six proposed topsoil stockpiles showing their placement on the road or pads in cross section and profile.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Degas Well Sites [07202007]

The reclamation timetable is shown on Figures 5-15 and 5-26. Unless otherwise specified, sites will be reclaimed in one phase after methane venting ceases. The well sites will be graded, topsoiled, roughened, seeded, and mulched (see Figures 5-4, 5-8, and 5-12). Topsoil replacement depth for each site is listed in Table 2-3. Delays in well plugging will occur as described in Sec.242.100.

The plan describes the reclamation of the drilling mud pits in Section 242.100. The mud pit will be allowed to dry and will be filled with soil that will be compacted to minimize settling.

There will be mixing of the cover material with the rock fragments and sediments of the mud pit to avoid creating an abrupt boundary between the layers.

The plan indicates the sites will be ripped to a depth of eighteen to twenty four inches (Section 242.100 and 341.200) to reduce compaction.

Topsoil will be re-spread using a trackhoe. The soils will be handled when loose and friable (not too wet, not too dry), see Section 242.100. Redistribution thickness is shown in Table 2-3.

Reclamation of the AMV road will not take place until final reclamation of sites G-18 and G-31. Section 542.100 suggests that the timeframe for "each major step in the reclamation plan" could be found in figure 5-15 and 5-26. Figure 5-26 indicates the weeks to completion from the start of reclamation activities. The Table in Attachment 5-2 indicates the planned year for reclamation work to begin, but no plans are disclosed for sites G-15 - G-19 or G-31 in Attachment 5-2.

Soil Nutrients and Amendments

Soil nutrients and amendments will be applied to the redistributed soils based on analyses of samples collected from the stockpiled topsoil as compared with baseline information.

Soil Stabilization

Soil may be replaced at grades of up to 1.5h: lv (p. 5-70). The steepness of these slopes will be reduced at their base, providing a concave slope. Soil stabilization techniques also include ripping the subsoils (see p. 2-39), gouging all slopes 3H: 1V or greater after topsoil application (p. 2-40 and 5-76) and hydromulching the seeded surface (p. 2-41 and 3-44 and 3-50). Slopes which are 3h: lv or steeper will be gouged using a trackhoe (p. 5-70).

Findings:

The information provided does not meet the requirements of the Regulations. Prior to approval, the following information should be verified:

R645-301-240, Verify the replacement topsoil depths listed for sites G-18, G-19, and G-31, based upon the twelve inch topsoil salvage depth described in Attachment 2-2 and 5-4.● The Table in Attachment 5-2 indicates the planned year for reclamation work to begin, but no plans are disclosed for sites G-15 - G-19 or G-31 in Attachment 5-2. Please provide some indication as to the life of the well sites.

RECOMMENDATIONS:

The application is not recommended for approval.

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