

#3646
R

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

December 20, 2010

TO: Internal File

THRU: Joe Helfrich, Team Lead 

FROM: Priscilla Burton, CPSSc, Environmental Scientist III *PWB km sas*

RE: Permit Application – Kinney #2 Mine, Carbon Resources, LLC, Carbon County, C/007/047, Task ID #3646.

SUMMARY:

The reformatted Kinney #2 Mine plan application was received on October 4, 2010 with supplemental information received on October 12, 2010. The mine plan application was previously determined to be administratively complete on June 24, 2008 (2008/Outgoing/0005.pdf). This review of the reformatted plan follows the previous review Task 2989 (see Outgoing correspondence dated March 25, April 27, August 19, 2010).

The Division notified county, state, and federal governing agencies on October 12, 2010.

Previous notification was dated June 25, 2008 (2008/Outgoing/0006.pdf). In response to the previous July 2008 public notice, the Division received one comment from the Center for Water Advocacy (2008/Incoming/0006.pdf). The commenter requested an informal conference. That conference was held on September 30, 2008 at the Price Field Office. The petition for unsuitability was determined to be incomplete and was dismissed by the Division (letter dated January 12, 2009).

Based upon my review of the soils and air quality information provided, this application requires additional information. The following information is requested:

R645-301-121.100, Section R234.220 & 234.230 states that the proposed stockpile locations are shown on Map 13, Surface Facilities, however this map shows only one topsoil stockpile location. It should also identify the location west of SR96. [PB]

R645-301-121.122, The MRP states that any unused material stored in the Temporary stockpile will be taken under contract with a third party to a processing facility. To verify this arrangement, the Division requests that the contract be included in the confidential files of the application. [PB]

TECHNICAL MEMO

December 20, 2010

R645-301-731.300 and R645-301-536.320, Provide a sampling plan to identify acid/toxic characteristics of waste stored on the surface. At a minimum, the plan should include a commitment to sample the temporary waste pile during periods of temporary cessation. [PB]

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

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

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The mine site is located on a sagebrush, grass and aspen vegetated hillside at 7,800 ft. elevation (Map 1A). State highway 96 runs along the western boundary of the permit area. The town of Scofield is within 1,000 ft of the permit boundary (Map 11). Approximately 1,200 ft west, Mud Creek flows past the town of Scofield (Map 8) and into Scofield State Recreation area approximately 3,000 ft. north of the proposed permit area (USGS Scofield Utah topographic map and Map 4).

There area 17 abandoned mine portals known in the immediate area (Map 8), mining the Columbine, the UP and the Hiawatha seams (Map 8 and Map 5). The proposed mine will re-affect a site that was reclaimed by the Division in 1986 (AMR\007\904, Scofield project). The pre-mining site condition is illustrated with photographs displayed in Exhibit 1 and the locations of the photographs are noted on Map 14.

The current and post mining land use is undeveloped rangeland (wildlife) and livestock pasture (grazing). The average annual precipitation is 14.5 inches (Table 14), based upon historic data recorded at the Clear Creek and Scofield dam sites (section R645-301-724.400).

Findings:

The information provided meets the requirements of the Rules for general resource information.

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:

Section R645-301-222 describes a 27.6 acre planned disturbance for the mine facilities area. The area was surveyed by Bruce Chessler in 2006 and 2007. According to the soil survey map, Figure 1 in Exhibit 6, 68,000 cubic yards may be recovered from 27.4 acres on the east side of SR 96. Table 8 in Exhibit 6 outlines the volume of salvage by map unit. Maps 34 and 37 show the proposed disturbed area boundary and the area of soil salvage. There is an estimated 12,000 cubic yards of buried coal fines buried that will be removed during the salvage operation (Section 232.100, Essential Step #13). Map 45 illustrates the known locations of buried coal fines.

The Order I soil survey in Exhibit 6 includes field description of soil pits, laboratory analysis of samples taken by horizon, and a soil map (Figure 1). The soil survey classifies the soil into five map units: DA (0 – 20% slopes previously disturbed land); DB (20 – 50% slopes previously disturbed land); 2A (Typic Argixeroll-Typic Haploxeroll complex, 0 – 35% slopes); 1B (Typic Argicryoll Consociation (35-70% slopes); 2B Typic Argixeroll Consociation (35 – 70 % slopes). These map units are described and representative pedons are provided for each unit.

Exhibit 7, Vegetation Information, provides total living cover estimates for both the disturbed (40%) and undisturbed (64%) vegetation types. Table 25 provides an estimate of productivity for each range type.

Previously disturbed soil, topsoil and subsoil will be salvaged for use in reclamation, no borrow soils will be needed.

Findings:

The information provided meets the requirements for baseline soil survey information as required by the R645 Coal Rules.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

The alluvial valley floor is discussed in Chapter 9 and shown on Map 32. The Permittee notes that the requirements of R645-302-321.100 pertain solely to surface coal mining and reclamation operations. However, the Rule heading, R645-302-320, clearly applies to both underground and surface coal mining operations.

320. Alluvial Valley Floors. R645-302-320 applies to any person who conducts or intends to conduct coal mining and reclamation operations on areas or adjacent to areas designated as alluvial valley floors.

As stated in the Application, the information is collected, because it is pertinent to the probable hydrologic impact of the underground mining operation.

The existence of an alluvial valley floor with irrigated pastures and areas of subirrigation along Mud Creek in Pleasant Valley below the Utah No. 2 Mine (now the reclaimed White Oak Load Out) was previously established by the Division (1984 Technical Analysis of the Valley Camp Mine, ACT/007/001, and Valley Camp MRP Map R645-301-411.100 Premining Land Use Map).

Regional Surface Geology Map 6, Regional Geology Map, illustrates Mud Creek flowing through alluvial sediments adjacent to the mine site permit area. Map 1A identifies many acres of pastureland between Hwy 96 and the railroad tracks. The proposed site is situated in an area that has been zoned agricultural (Map 4, Regional Land Use Map). Mine Surface Facilities Map 14 illustrates the location of an irrigation ditch on the proposed mine site. Although the irrigation ditch is not in use (Chapter 9, R645-302-322.100), cross section A-A' on Map 16 Mine Surface Facilities Area Cross Sections, shows the irrigation ditch will be culverted during mining and restored after mining, to preserve the conveyance for future use.

As illustrated on Map 32, the AVF follows Mud Creek to the Scofield Reservoir. The AVF is outside of the proposed permit boundary, west of SR 96. Map 32 outlines an AVF (alluvial deposits) and a "Quasi-AVF" area (with a potential for flood irrigation), the soil map units, the locations of the Scofield Ditch Company ditches, and provides a table of AVF acreage by landowner. Productivity estimates are given for the Silas soil map unit as cited in the 1988 NRCS publication, Carbon County Soil Survey. Silas Soil is the main component of both Map Unit 108 and 109, along stream channels and in low lands. The silas soil is in the Mountain Meadow range site, with an expected annual productivity of 3,000 lbs/ac, with an estimated carrying capacity of 1 AUM/acre (Chap 9, Livestock capability). The Division has observed that the Jones and Smiths run a sizeable calf/cow operation (landowners for areas 1 – 9), but that the Hammond land (area 10, across the highway from the proposed mine site) is not presently in agricultural use.

A comment was received during the (2008) public comment period that adequate information was not available in the application to ensure protection of renewable resource lands. In accordance with R645-302-320, the application includes a description of the potential for agricultural activity for the predominant Silas Loam soil within the adjacent AVF. The application describes Scofield Ditch system as the source of irrigation for the adjacent lands. The East Branch ditch divides as shown on Map 32. The last successful use of the ditch was 25 years ago, according (Productivity discussion, Chap 9). The applicant has provided a map identifying the adjacent [agricultural] landowners, identifying subirrigated (AVF) and potentially irrigated (Quasi-AVF) lands, showing all irrigation ditches, and defining the extent of the adjacent alluvial valley floor in Pleasant Valley.

Map Unit 108, Map 32 does not extend north to take in the mouth of Miller Creek. The Applicant indicates that Miller Creek will be addressed during future expansion (Chapter 9, Discussion).

Findings:

The information provided meets the requirements of Alluvial Valley Floor identification immediately adjacent to the proposed permit area.

PRIME FARMLAND

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

Analysis:

The NRCS determined the land was not prime farmland (Exhibit 2). The Division concurs with the NRCS, due to the fact that the land has been historically used for mining (Map 5) and was reclaimed by the Division under the Scofield Abandoned Mine Reclamation project (AMR/007/904). Although the remnants of a diversion ditch exist within the permit area (Map 14), it likely served the surrounding agricultural land shown on Map 4.

Findings:

The information provided meets the requirements for baseline soil survey information as required by the R645 Coal Rules.

TECHNICAL MEMO

OPERATION PLAN

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

Analysis:

Section R645-301-422 describes the Scofield area as an attainment area for the primary pollutant standards as defined by the National Ambient Air Quality Act. As such, federal air emission requirements are not applicable.

The Air Quality Approval Order (DAQE-AN0141180001-08) dated December 11, 2008 is found in Exhibit 4. Dust control practices are itemized in the Air Quality Approval. The site is authorized to producing 3,000,000 tons of coal per rolling 12 month period.

The main access road to the site PR 1 will be paved and a 15 mph speed limit will be posted (Section R645-301-527). The coal conveyance system will include enclosed transfer points and water sprays (R64503910528.100, p. 5-49). The surface conveyance system will handle 1,000 tons per hour. There will be two 17,000 ton coal stockpiles (spec and non-spec), a 3,900 ton waste rock storage pile (Section 528.321).

Findings:

The application meets the requirements for coordination with the Utah Division of Air Quality.

TOPSOIL AND SUBSOIL

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

Analysis:

Topsoil Removal and Storage

The proposed disturbed area is 27.6 acres and includes 0.4 acres across SR 96 from the main facilities. Total potential topsoil and yield is 68,845 yd³ (Section 232.100 and Map 34).

Most of the soil (40,460 yd³) will come from 20 acres of previously disturbed lands, and most of the previously disturbed soil (38,859 yd³) comes from Map Units DA-3, DB-2, DB-4, and DB-5. Based upon the soil survey, the plan calls for soil removal from 1.2 feet up to a depth of three feet (Map 37). Topsoil and subsoil from undisturbed slopes will contribute 27,396 cubic yards from 6.94 acres (Map Units 1B, 2A, and 2B) to the stockpile. However, steep areas will not have topsoil salvaged and approximately 13,879 yd of topsoil from steep areas will be mixed with the fill (Section 232.100). Map 37 demarcates the topsoil salvage boundary along those areas considered too steep (> 30%) for soil salvage. Map 33 illustrates the slopes within the proposed disturbance and itemizes 7.37 acres or 29.47% of the permit area as unavailable for soil salvage due to slope.

Section 232.100 describes salvage of soil from avoidance of buried coal and separation of coal fines from salvaged soil, if the buried coal is greater than six inches deep. Map 45 provides information on the location and volume of the estimated 12,000 yd³ of coal fines buried in within the disturbed area.

A qualified reclamation specialist/soil scientist will be on site to direct the soil salvage, which is complicated by areas of previously disturbed and pockets of buried coal. The applicant commits to reporting final salvage volumes in an annual report (R645-301-232.100).

The salvaged soil will be stored in three locations as described on Map 38, Topsoil Storage. Only the one of these topsoil storage locations is shown on Map 13, Surface Facilities. Two stockpiles west of the SR 96 will hold approximately 2,000 yd³. East of SR 96, the largest stockpile will be layered against the bathhouse parking lot fill. The soil will be protected by a ditch, a berm and by a six foot excavated material base that will raise the level of the topsoil pile above the expected level of road salt accumulation. Pile construction is illustrated on Plate 38. This stockpile has the capacity for approximately 20,000 topsoil storage that will be constructed in a trapezoidal shape against the existing slope and against a fill slope. The topsoil stockpile will be approximately 20 ft. in depth with an outslope of approximately 4h:1v (as shown in cross Section A-A' on Map 16). Berms and ditches will protect the large stockpile from water erosion, described in Section 234.220 and 234.230. The topsoil stockpile sediment control plan is illustrated on Map 24. Surface roughening and a temporary seed mixture of wheatgrasses, bluegrass and Utah Sweetvetch (Table 21) will also provide erosion protection on the stockpile outslope.

Findings:

The information provided in the application meets the requirements of the R645 Coal Rules for Soils Handling Operation Plan. However, there is one omission that should be corrected either prior to approval or with as built information.

TECHNICAL MEMO

December 20, 2010

R645-301-121.100, Section R234.220 & 234.230 states that the proposed stockpile locations are shown on Map 13, Surface Facilities, however this map shows only one topsoil stockpile location. It should also identify the location west of SR96.

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, -300-148, -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:

General

Acid- and Toxic-Forming Materials and Underground Development Waste

Tables 4 and 4A in Section R645-301-624 present the results of acid/toxic analysis on six cores within the proposed lease area and on mine waste buried within the proposed disturbed area boundary. Exhibit 19 in Volume 4 presents the details of the core analysis which was performed by SGS Labs, Denver. Exhibit 6 presents the details of the mine waste analysis, also performed by SGS Labs.

The information provided suggests that the roof and floor is potentially acid forming. The roof and floor may be blended with the coal product, or it may be placed temporarily in the Temporary Stockpile shown on Map 13, Surface Facilities, or it may be temporarily stored in the "off-spec" stacking tube for eventual shipping. The MRP states that any unused material stored in the Temporary stockpile will be taken under contract with a third party to a processing facility. To verify this arrangement, the Division requests that the contract be included in the confidential files of the application. The application should provide for periodic sampling of the waste pile. At a minimum, the waste pile should be sampled during periods of temporary cessation.

Section 542.200 Backfilling and Grading to Establish Final Configuration states that the all coal seams and any coal mine materials or coaly materials will be covered with four feet of suitable soil (Priority #1). Section 553.250 Refuse Pile & 553.260 Disposal of Coal Processing Waste states that coal mine waste encountered during reclamation will be covered with four feet of suitable material and Section 553.300 provides a commitment to backfill the coal seam with four feet of cover.

Findings:

The information provided suggests that the roof and floor is potentially acid forming.

R645-301-121.122, The MRP states that any unused material stored in the Temporary stockpile will be taken under contract with a third party to a processing facility. To verify this arrangement, the Division requests that the contract be included in the confidential files of the application.

R645-301-731.300 and R645-301-536.320, Provide a sampling plan to identify acid/toxic characteristics of waste stored on the surface. At a minimum, the plan should include a commitment to sample the temporary waste pile during periods of temporary cessation. [PB]

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

Operational contours are shown on Surface Facilities Map 13. Cuts made into competent sandstone may approach 0.8h:1v (Exhibit 14). Reclamation slopes will vary from 5h:1v to 0.5h:1v (Section 542.200, Backfilling and Grading to Establish Final Configuration). Exhibit 14, RB&G Engineering November 2007 Report, discusses the stability of reclamation fill slopes ranging from 1.4H:1V to 2H:1V. RB&G specifies that clayey fill slopes (Sections A-A, B-B, and F-F) constructed at 1.5h:1v will have a safety factor of 1.3 and that the silty sand fill (Sections C-C, D-D, and E-E) could achieve a safety factor of 1.3 at slopes of 1.8h:1v. Map 29 shows reclamation contours. Map 33 identifies the locations of steep slope reclamation areas and will be used to determine reclamation treatment as discussed in Section 542.200 Soil/Substitute Replacement.

The final reclamation contours are shown on Map 29, Post Mining Topography. Cross sections of the post mining topography are shown on Maps 16 through 19; cross-section locations are shown on Map 13, Surface Facilities.

Tractor scrapers or wheel loaders and trucks will be used to recover material stored in the stockpile and transport the material to the graded slopes. A uniform thickness of 14.8 inches will be replaced on the graded surface. Soil replacement thickness will be monitored (Section

TECHNICAL MEMO

R645-301-242). After soil placement, soils will be sampled and analyzed, with 1 sample taken per four acres (Section R645-301-243). Samples will be analyzed for suitability parameters described in the Utah Guidelines for Topsoil and Overburden.

Regraded slopes of less than 30% will be deep ripped. Slopes of greater than 30% will be roughened with a track hoe. Refer to Map 33 for slope steepness. All regraded slopes will be amended with 3 Tons/ac chopped hay (Section R645-301-243). Further fertility amendments will be dependent upon the results of the laboratory analysis. Seeding will occur immediately after topsoil placement (Section R645-301-244.200, Soil Stabilization).

Sections R645-301-244.200 and R635-301-340 Soil Replacement and R645-301-355 describe the application of an additional 2.0 tons/acre straw or hay after seeding, followed by crimping.

Findings:

The information provided in the application meets the requirements of the R645 Coal Rules for Soils Redistribution Plan.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

Section R645-301-352 describes contemporaneous reclamation practices for exploration activity.

Findings:

Information provided meets the requirements of the Coal Rules.

STABILIZATION OF SURFACE AREAS

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

Analysis:

Stockpiled topsoil and subsoil will be bermed and seeded. The stockpile will cover 2.1 acres (Section 231.400).

Section R645-301-331 describes interim reclamation of roadcuts, ditches, sedimentation pond embankments, soil stockpiles to control erosion. Section R645-201[sic]-527 emphasizes all road cut and fill slopes and excavated slopes will be stabilized with an interim vegetation mix.

Road PR-1 will be paved from Hwy 96 to the shop/warehouse (Section R645-201[sic]-527). Other roads will be watered or be treated with dust suppressants and a 15 mph speed limit will be imposed in accordance with the air quality permit dated December 11, 2008 (Exhibit 4).

Final reclaimed areas will be ripped or gouged, seeded and top dressed with 2 tons/acre straw crimped into the soil (Section R645-301-340 Soil Replacement and Seedbed Preparation and Section R645-301-355). Section 412.100 states the post mining land use is wildlife, watershed, and commercial. A commitment for the treatment of rills and gullies is found in Section 244.300.

Findings:

The information provided in the application meets the requirements of the R645 Coal Rules for Soil Stabilization.

RECOMMENDATIONS:

Three items require further clarification.