



GARY R. HERBERT
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SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

February 13, 2018

John Byars, General Manager
Canyon Fuel Company, LLC
597 South SR24
Salina, Utah 84654

Subject: 4 Right 4 East Panel, Canyon Fuel Company, LLC, Sufco Mine, C/041/0002,
Task ID #5596

Dear Mr. Byars:

The Division has reviewed your application. The Division has identified deficiencies that must be addressed before final approval can be granted. The deficiencies are listed as an attachment to this letter.

The deficiencies authors are identified so that your staff can communicate directly with that individual should questions arise. The plans as submitted are denied. Please resubmit the entire application.

If you have any questions, please call me at (801) 538-5325.

Sincerely,

Daron R. Haddock
Coal Program Manager

DRH/sqs
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Technical Analysis and Findings
Utah Coal Regulatory Program

PID: C0410002
TaskID: 5596
Mine Name: SUFCO MINE
Title: 4 RIGHT 4 EAST PANEL

General Contents

Maps and Plans

Analysis:

The amendment meets the State of Utah R645 requirements for Maps and Plans.

A previous deficiency identified references to plates 5-10A, 5-10B, 5-10C, 5-10AC, 5-10BC, and 5-10CC within the narrative of the amendment but were not included. These missing plates were also notably absent from the MRP and confidential folders. Prior to final approval Permittee was required to either provide the Division with these plates, or remove all references to them within the narrative.

Permittee has submitted Plates 5-10A and 5-10C and omitted all references to the other plates within the narrative, thus satisfying the requirements of this amendment.

jeatchel

Environmental Resource Information

Historic and Archeological Resource Information

Analysis:

The amendment meets the State of Utah R645-301-411 requirements for historic and archeological resource information. A cultural resource inventory was performed in July of 2017 by Tetra Tech and it concluded that there were no sites found within the area of the panel that are eligible for listing the National Register of Historic Places. A Determination of Significance and Effect signed by the Forest Service and the Utah SHPO indicated concurrence on the determination of no effect due to the absence of sites within the project area.

tmiller

Vegetation Resource Information

Analysis:

The amendment meets the State of Utah R645-301-320 requirements for vegetation resource information. Page 3-4 provides a description of the plant communities and vegetative types within the proposed permit area. The description includes "pinyon-juniper, sage brush/grass, and mountain sagebrush types of the desert shrub biome" as vegetative types found in the area. Plate 3-1 is a map delineating the existing plant communities in the area surrounding the 4R4E panel location. According to Plate 3-1, the panel will be located under primarily Douglas fir/spruce/limber pine

community as well as pinyon-juniper/mountain mahogany. There is also some ponderosa pine/mountain mahogany/Manzanita community present in the area over the panel.

triller

Fish and Wildlife Resource Information

Analysis:

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife resource information. The primary wildlife concerns for this area are deer and elk high priority and critical winter range, potential raptor nesting habitat, and the sage grouse lekking, nesting, and brood-rearing habitat located above the 4R4E panel. Information regarding deer and elk winter ranges is provided on Plate 3-2, "Elk Range," Plate 3-3, "Deer Range & Raptor Nests," Appendix 3-15 Figure B, and in the narrative on pages 3-12 and 3-17 among others. Raptor information is included in Appendix 3-4, Appendix 3-15, and on page 3-10 of the narrative. However, the amendment lacks the site-specific information regarding the proximal sage grouse habitat required by R645-301-322. Following consultation with state and federal agencies, it was determined that the proposed 4R4E panel is not likely to have an impact on sage grouse lekking, nesting, or brood rearing activity in the area due to habitat and terrain in the area, however, the Division requires the inclusion of the information regarding sage grouse habitat due to the panel's proximity to this important habitat.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife resource information. Following consultation with state and federal agencies, it is determined that the following deficiency must be addressed prior to final approval:

R645-301-322: The Permittee must include site-specific information regarding the sage grouse lekking, nesting, and brood-rearing habitat located above and adjacent to the 4R4E panel.

triller

Hydro Baseline Information

Analysis:

The amendment does not meet the State of Utah R645 requirements for Baseline Information.

4 Right 4 East Panel is located on the existing U-63214 within the Quitchupah Tract. The mine plan with 5-year projection, shown on Plate 5-7, indicates mining to occur only in the Upper Hiawatha seam. The overburden in this panel ranges from 300' to 900' with potential for subsidence above the 4R4E panel ranging from 1-5 feet, 2 feet on average. No surface disturbance is anticipated and/or planned with the proposed expansion. Previously submitted and approved baseline information relative to ground and surface water resources have been approved within the SUFCO mine area. The previous characterization of these resources provides an accurate picture of the baseline hydrology in the region. The Permittee provides baseline data and supporting narrative and analyses for water resources in the area of and adjacent to the 4R 4E panel on page 7-3 of the MRP and n Appendix 7-17.

Geologic information for areas within and adjacent to the 4R 4E panel is provided on page 7-5 and in Appendix 7-17. Plate 6-1 in the MRP shows the drill surface geology of the entire SUFCO mine. 4R4E is predominantly located in the Blackhawk Formation.

Appendix 7-17 also discusses the water monitoring that is conducted within the Quitchupah Tract. Beginning in 1983. SUFCO mine personnel have performed quarterly monitoring of five creek sites, four springs, 13 monitoring wells, mine discharge water, and one roof drip site within the mine. The acquisition of the Quitchupah Coal Lease Tract in 1987, three springs, one creek and seven monitoring wells were added to the monitoring program. Of these sites, 13 are still being monitored including 7 streams and 6 springs.

Surface drainages are outlined on page 7-17 of the MRP, which include the North Fork of Quitchupah Creek, South Fork of Quitchupah Creek, Quitchupah Creek, Box Canyon including East Fork Box Canyon, Muddy Creek, and Cowboy Creek. The proposed 4R 4E panel falls nearest to the North Fork of Quitchupah Drainage.

Additionally, gain/loss studies have been performed on Quitchupah Creek in 1995 with findings in Thiros and Cordy in 1991. The goal was to evaluate and characterize the flow characteristics of this drainage. Measurements were made using a Marsh-McBurney brand automated pressure transducer flow meter. Information and figures for this are provided

in Appendix 7-17.

Figure 4 of Appendix 7-17 provides a plan view of the surficial geology within the Quitchupah Coal Lease Tract. Figure 5 provides a southwest to northeast cross-sectional view of the geologic units within the Quitchupah Coal Lease Tract. Figure 6 depicts the generalized stratigraphic sections of each of the geologic units within the Quitchupah Coal Lease Tract. A detailed discussion of each of the geologic units within the area of panel 4R4E begins on page 8 of Appendix 7-17.

Plate 7-2, Surface and Groundwater Rights Quitchupah Tract depict the ground and surface water rights in the area of the 4R4E panels. The 3R4E panels are located in an area with minimal ground and surface water rights identified. Surface water right 94-949 is located on the North Fork of Quitchupah Creek approximately 1 mile southeast of the panel. A water runoff catchment pond (94-583) is located north of the 4R4E panels and a natural surface water pond is located approximately 3/4 of a mile northwest of the panel (9-584). The identified water rights are located well outside the anticipated subsidence area. Also, these areas have already been undermined according to the mine plan described in Plate 5-7. Based upon the baseline information presented in Appendix 7-17, and the narrative provided on Page 7-19, a 2017 walking survey was completed on the surface above and immediately adjacent to the 4R4E proposed panel. The Permittee found no surface or groundwater sources. Further, exploration wells were drilled during 2017, at the locations depicted on Plate 7-11. No water was encountered during the drilling process. The drill logs are presented in Plate 7-10. Therefore, the area of Panel 4R4E is void of all water resources except the catchments described previously, with both of these ponds having already been undermined and are well outside the projected/potential limits of subsidence.

The Permittee must update the narrative on Page 7-19 to accurately cite the figure location of drillhole logs and the drillhole maps. Currently, the citation is for Figure 7-4A and Figure 7-4B. However, these figures have been provided as Plate 7-10 and Plate 7-11. The table of contents already correctly cites this information.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Baseline Information. The following deficiency must be addressed prior to final approval:

R645-301-121.200: The Permittee must update the narrative on page 7-19 to correctly cite the figures depicting the drillhole location map and drillhole logs. Currently the citation reads Figure 7-4A and Figure 7-4B, however, this information is provided as Plate 7-10 and Plate 7-11.

aumarva

Hydro Baseline Cumulative Impact Area

Analysis:

The amendment meets the State of Utah R534 requirements for Hydrologic Baseline Cumulative Impact Area.

The proposed 4R4E panel is located within the Quitchupah and Muddy Creek Cumulative Impact Area (CIA) located in Sevier County, Utah west of the town of Emery. The CIA is depicted on Plate 1, Location Map of the Cumulative Impact Area Quitchupah-Muddy Creek and Plate 2, Workings Map Cumulative Impact Area Quitchupah-Muddy Creek of the Cumulative Hydrologic Impact Assessment (CHIA). The hydrologic and geologic information required to establish the CIA has previously been provided to the Division. Federal lease U-63214 were awarded to the Permittee in 1989, ongoing water monitoring data continues to be provided to the Division at 13 locations, 6 springs and 7 streams stations, the CIA does not require a revision at this time.

aumarva

Probable Hydrologic Consequences Determination

Analysis:

The amendment meets the State of Utah R645 requirements for Probable Hydrologic Consequences Determination.

The approved MRP discusses the probable hydrologic consequences of mining beginning on page 7-26. A specific study of the surface and groundwater hydrology of the Quitchupah Tract is provided in Appendix 7-17. The 4R4E Panel is located within the Quitchupah Tract, within the U-63214 lease.

With the exception of subsidence, which is expected to be approximately 2 feet in the 4R4E area, no surface disturbance is proposed or anticipated. Further, no surface or groundwater resources have been identified in the area above 4R4E Panel or within the area of expected subsidence. The Permittee confirms the lack of water resources in the narrative provided on page 7-18 of the MRP. In 2017, the Permittee completed a walking survey above 4R4E and in the immediately adjacent areas and was unable to identify any surface or groundwater resources. In addition, the Permittee drilled several exploration wells in 2017, and no water was encountered during drilling. The Permittee does not provide walking survey dates or information on drilling depths to aid in hydrologic review.

Though no surface and groundwater resources have been identified above or immediately adjacent to the proposed 4R4E panel, one natural pond is established approximately 3/4 mile northwest of the Panel and a runoff catchment is located 1/2 mile just north of the panel. The Permittee does not mention the runoff catchment in the narrative, however it is pictured on the water rights map Plate 7-2. These two ponds are unlikely to be impacted by the panel because they are well outside the area of expected subsidence and they have already been undermined by long wall panels in the Quitchupah Lease.

Furthermore, due to the lack of water resources in the area above and immediately adjacent to the proposed panel, diminution or interruption of water resources is not anticipated as a probable hydrologic consequence. Similarly, contamination or impacts to water quality are also not anticipated.

To address the previous deficiency of providing additional information of the walking survey to evaluate the presence of water resources in the 4R4E area, the Permittee provides, on page 7-18, a detailed account of the surface and ground water resources surveys conducted in the area above and immediately adjacent to the proposed panel. The Permittee also provides in Table 7-11 and Plate 7-10 the drill hole information, logs, and maps for two exploratory wells drilled near 4R4E panel. No water was encountered.

aumarva

Maps Archeological Site Maps

Analysis:

The amendment meets the State of Utah R645-301-411 requirement for archeological site maps. The map included in Appendix 4-2 shows the approximate limit of potential subsidence from the 4R4E panel and indicates no known NRHP-eligible sites are within or adjacent to the subsidence limit.

tmiller

Maps Monitoring and Sampling Locations

Analysis:

The amendment meets the State of Utah R645 requirements for Monitoring and Sampling Location maps.

Plate 7-3, Hydrologic Monitoring Stations depicts the monitoring and sampling locations in the area of the proposed 4R4E panel. The Permittee addresses the previous deficiency by updating Plate 7-3 with the outline of the proposed mining activity of the 4R4E panel.

aumarva

Maps Subsurface Water Resources

Analysis:

The amendment meets the State of Utah R645 requirements for Subsurface Water Resource Maps.

The previously approved baseline data, Probable Hydrologic Consequences and subsequent CHIA document found that groundwater occurs in perched zones of limited areal extent within the area of the proposed 4R4E panel. The data provided in Appendix 7-17 and 7-18 of the approved MRP demonstrate that none of the formations down through the Blackhawk formation support a continuous aquifer. The ground water systems in the area are perched and discontinuous. Furthermore, through walking surveys and exploratory drilling operations, the Permittee states on Page 7-18 of the MRP that no water resources were encountered.

aumarva

Maps Surface Water Resource

Analysis:

The amendment meets the State of Utah R645 requirements for Surface Water Resource Maps.

Plate 7-2 identifies the state appropriated water rights within the permit and adjacent area. Additionally, Plate 7-3 depicts the surface water resources and drainages both within and adjacent to the permit area (including the proposed location of Panel 4R4E.

aumarva

Operation Plan

Subsidence Control Plan Renewable Resource

Analysis:

The amendment meets the State of Utah R645 requirements for Renewable Resources Survey.

The Permittee provides a subsidence survey in Plate 5-10. The permittee also provides information on Page 7-18 of the MRP of a walking survey and exploratory drilling where no water was encountered above or immediately adjacent to the proposed 4R4E panel. Furthermore, two surface ponds are located north and 3/4 mile northwest of the proposed panel. These ponds have water rights, have already been undermined by longwall mining, and are well outside the area of potential subsidence impacts. Based on the information provided, no renewable resources (i.e. water resources) would expect to experience material damage or diminution in the event of mine subsidence.

aumarva

Fish and Wildlife Protection and Enhancement Plan

Analysis:

The amendment does not meet the State of Utah R645-301-333 and R645-301-358 requirements for fish and wildlife protection and enhancement. Appendix 3-15 Figure B indicates the limit of subsidence of the 4R4E panel in relation to critical and high priority deer and elk winter range. Due to the possibility of subsidence associated with the mining of the 4R4E panel affecting these important habitats, and after consulting with the Utah Division of Wildlife Resources, the Utah Division of Oil, Gas, and Mining requires a monitoring and mitigation plan to accompany this amendment. Monitoring for subsidence surface cracks must occur between 60 and 90 days of completion of the longwall panel and subsidence crack mitigation must be completed as soon as feasible after monitoring. This mitigation must be completed as described on page 3-48A and page 3-42 of the MRP which reads: "This mitigation may include but not limited to backfilling the cracks with available local native materials and soil, partially backfilling with imported fill, or simply reshaping of the nearby ground surface to lessen the offset or abruptness of the crack faces and depth. The repaired areas will then be reseeded with a seed mix appropriate to the area and one approved by the Division and land owner/agency."

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-333 and R645-301-358 requirements for fish and wildlife protection and enhancement. The following deficiency must be addressed prior to final approval:

R645-301-358: The Permittee must include in the amendment a surface subsidence crack monitoring plan to be carried out between 60 and 90 days following completion of the 4R4E longwall panel. Mitigation as described on pages 3-42 and 3-48A of the MRP must be carried out as soon as feasible following the required monitoring.

tmiller

Fish and Wildlife Bald and Golden Eagles

Analysis:

The amendment meets the State of Utah R645-301-322, R645-301-333, and R645-301-358 requirements for fish and wildlife bald and golden eagle protection. A July 2017 raptor survey included in Appendix 3-4 indicated no known eagle nests were located in the area of the 4R4E panel. The map contained in Appendix 3-15 indicates the area of potential

subsidence and shows no raptor nests are found within or adjacent to this area.

tmiller

Hydrologic Ground Water Monitoring

Analysis:

The amendment meets the State of Utah R645 requirements for Groundwater Monitoring.

Appendix 7-17 discusses groundwater monitoring conducted in the Quitchupah Tract. The Permittee began quarterly monitoring of five creek sites, four springs, 13 monitoring wells, mine discharge water and one roof drip site within the mine in 1983. Once the Quitchupah Coal Lease Tract was acquired in 1989, three springs, one creek and seven monitoring wells were added to the monitoring program. The monitoring wells are monitored for water level only. Currently, 7 stream and 6 spring locations are still being monitored quarterly. Upon review of the baseline data provided in Appendix 7-17 and the narrative provided in Chapter 7, no groundwater springs or seeps have been identified in the area of 4R4E. Furthermore, through exploratory drilling, the Permittee also did not encounter any water. The closest spring sites that are monitored are well outside the potential limits of subsidence.

aumarva

Hydro Surface Water Monitoring

Analysis:

The amendment meets the State of Utah R645 requirements for Surface Water Monitoring.

The Permittee does not identify any surface water within the area above and immediately adjacent to the proposed 4R4E Panel. Surface water monitoring is ongoing within the tract, however, with the current water monitoring plan identifying 7 stream sites within the Quitchupah Tract. Further, monitoring site 006D is located on the South Fork of Quitchupah just above the confluence with the North Fork of Quitchupah Creek, with quarterly monitoring since 2012. Monitoring site 007 is located northwest of the panel and has been monitored quarterly since 1979. Monitoring site 042 is located downstream, and has been monitored quarterly since 1979 to the present.

aumarva

Maps Affected Area

Analysis:

The amendment meets the State of Utah R6545 requirements for Affected Area Maps.

A previous review of plates submitted in this amendment revealed a discrepancy in projected subsidence over the 4R4E panel. The projected subsidence depicted in Appendix 6-4 was not the same as depicted on Plates 5-10 and 5-10C. Permittee was required to alter Plates 5-10 and 5-10C to preserve consistency in the depiction and identification of the potential subsidence limits.

Permittee has made changes to Plates 5-10 and 5-10C to show that projected subsidence lies directly above the location of the 4R4E panel. These changes are now consistent with what is depicted in appendix 6-4, and therefore satisfy the requirements of this amendment.

jeatchel

Reclamation Plan

Hydrological Information Reclamation Plan

Analysis:

The amendment meets the State of Utah R645 rules for Hydrologic Reclamation Plan.

As the proposed mining of panel 4R4E does not call for any additional surface disturbance, the approved hydrologic reclamation plan does not require a revision with this amendment.

aumarva

CHIA

CHIA

Analysis:

The amendment meets the State of Utah R645 requirements for Cumulative Hydrologic Impact Assessment (CHIA).

The proposed location of panel 4R4E is located in the center of the existing Cumulative Impact Area (CIA). The Quitchupah and Muddy Creek CHIA was completed initially in 1989 with a second revision in 2005. The addition of the 4R4E panel does not require revisions to the existing CHIA as the potential impacts from coal mining activity in the area of the panel has been previously examined and a finding made by the Division that the mine plan has been designed to prevent material damage to the hydrologic balance.

aumarva