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DEPARTMENT OF NATURAL RESOURCES
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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0410002
TaskID: 5360
Mine Name: SUFCO MINE
Title: 3 RIGHT 4 EAST PANELS

Summary

The 3 Right 4 East Panel(s) are located on existing leases U-63214 and U-62453 which are part of the Quitchupah Tract/Lease. Mining of this panel(s) will straddle Leases U-63214 and U-62453 which are referred to as the Quitchupah Tract/Lease throughout the M&RP in text, appendices and on drawings.

No surface disturbance is anticipated beyond the potential for subsidence.

Deficiencies Details:

lreinhart

Environmental Resource Information

Historic and Archeological Resource Information

Analysis:

The application does not meet the State of Utah R645 Coal Mining Rule requirements for General Contents: Clear and Concise as it pertains to Historic and Archaeological Resource information (R645-301-121.200).

The application does not meet the State of Utah R645 Coal Mining Rule requirements for General Contents: Current Information as it pertains to Historic and Archaeological Resource information (R645-301-121.100).

The application does not meet the State of Utah R645 Coal Mining Rule requirements for Land Use and Air Quality: Coordination with the State Historic Preservation Office (R645-301-411.142).

Deficiencies Details:

State of Utah R645 Coal Mining Rule requirements for General Contents: Clear and Concise as it pertains to Historic and Archaeological Resource information (R645-301-121.200):

Information presented under the 3 Right 4 East Panels amendment cites a 1992 cultural resource inventory report wherein three cultural resource sites were identified north of the proposed 3 Right 4 East Panel project area. The current language states "According to SHPO, these sites have not been listed with the National Register." At present, the Utah State Historic Preservation Office database lists these sites as being Eligible for the National Register. While they are not listed on the

Register, they are eligible for it, and as such require a certain level of consideration. As such, it is confusing to omit a note regarding the sites' current eligibility in the present discussion. Include language that discusses the sites' eligibility for the National Register.

State of Utah R645 Coal Mining Rule requirements for General Contents: Current Information as it pertains to Historic and Archaeological Resource information (R645-301-121.100) and Land Use and Air Quality: Coordination with the State Historic Preservation Office (R645-301-411.142):

The 3 Right 4 East Panel amendment discusses additional cultural resource inventory work in the area addressed under the 1992 cultural resources inventory, and notes this work has not yet been conducted. The report of the updated cultural work needs to be included with the amendment, along with copies of SHPO consultation once the report has been submitted to, reviewed by, and consulted on by the Forest Service.

jmontcalm

Vegetation Resource Information

Analysis:

The amendment meets the State of Utah R645-301-321 requirements for vegetation resource information.

Volume 1, Chapter 3, Section 3.2.1, pages 3-3 through 3-5 provide vegetation information.

lreinhart

Fish and Wildlife Resource Information

Analysis:

The amendment meets the State of Utah R645-301-322 requirements for fish and wildlife resource information.

Volume 1, Chapter 3, Section 3.2.2, pages 3-6 through 3-27 provide fish and wildlife information. Section 3.2.2.3 contains the Fish and Wildlife Service Review.

In October of 1988 an environmental assessment of the Quitchupah Lease area was performed by the Forest Service and Bureau of Land Management. A helicopter survey to locate raptors and migratory bird species were conducted in 1982 and 1988 by UDWR, USFWS, BLM, and USFS.

In 1988 ten golden eagle nests were located within the Quitchupah lease boundary, two were active, two were tended and the remaining six were inactive. One active nest and two inactive nests were located in Section 33 during these surveys. Raptor nests in the canyon located in Section 33 were surveyed in 2014, 2015 and 2016 by the DWR. One of the four nests in the canyon was active in 2015, the same nest appeared tended in 2014 and 2016. The other nests were inactive during the three-year survey period. The nests will be re-surveyed in 2017 should mining be approved for the 3 Right 4 East Panel(s).

According to the DWR in 1989 assessment the southern portion of the lease area is considered crucial winter range for deer and elk. The escarpment in the southeastern portion of the Quitchupah tract which lies between Quitchupah Canyon and Link Canyon is known as an elk migration route, providing access to and from the winter range from the plateau top.

The Quitchupah Drainage, of which Link Canyon is a tributary, was identified in the Quitchupah Creek Road DEIS (2001) as not likely to contain Mexican Spotted Owls and dedicated surveys were not necessary.

The level of detail of the information is sufficient to design the protection and enhancement plan under R645-301-333.

lreinhart

Land Use Resource Information

Analysis:

The amendment meets the State of Utah R645-301-411 requirements for land use information.

Volume 1, Chapter 4, Section 4.10, pages 4-1 through 4-12A provide information on premining land use. Land uses include mining, firewood collection, livestock grazing, wildlife habitat, watershed, exploration, and recreation.

Information in the approved MRP adequately addresses pre-mining land use.

lreinhart

Hydro Baseline Information

Analysis:

The amendment meets the State of Utah R645 requirements for Baseline Information.

3 Right 4 East Panels are located on existing leases U-63214 and U-62453 within the Quitchupah Tract/Lease. The leases were issued to the company in 1989. The mine plan is shown on Plate 5-7 with mining to occur only within the Upper Hiawatha coal seam. The overburden in this area is approximately 900'. No surface disturbance is anticipated and/or planned with the proposed expansion into these two panels

Previously submitted and approved baseline information relative to ground and surface water resources have been approved the proposed location of Panel 3R4E. Beginning on page 7-3 of the approved Sufco MRP and continuing in Appendix 7-17, the Permittee provides baseline data and supporting narrative and analyses that characterizes the ground and surface water resources in the area of and adjacent to the 3R 4E panel.

A detailed discussion of the geologic units within the permit and adjacent area are provided beginning on page 7-5 and continued in Appendix 7-17. Plate 7-3 depicts the water monitoring wells and spring locations in the permit and adjacent area.

The major surface drainages are discussed beginning on page 7-17 and continued in Appendix 7-17. Figure 7-4 depicts the major surface drainages. The North Fork of Quitchupah is the closest surface water body to the 3R4E panel. The most exterior development of Panel 3R4E appears to be approximately 1/8th of a mile from the North Fork of Quitchupah Creek.

Appendix 7-17 discusses the water monitoring that is conducted in the Quitchupah Coal Lease Tract (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.

Additionally, gain/loss studies have been performed on Quitchupah Creek and its tributaries in an effort to evaluate and characterize the flow characteristics of this drainage.

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 3R4E begins on page 8 of Appendix 7-17. Panel 3R4E is located primarily in the Black Hawk Formation

Appendix 7-17 provides baseline data relative to ground and surface water and their inherent chemical compositions and flow rates.

Plate 7-2A, Surface and Groundwater Rights Quitchupah Tract depict the ground and surface water rights in the area of the 3R4E 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 south of the panels. Two storm-water runoff catchment ponds (94-584 and 94-585) are located well over Â½ mile to the north of the 3R4E panels. In both instances, the identified water rights are located well outside the anticipated subsidence area.

Based upon the baseline information presented in Appendix V-17, the location of Panel 3R4E and the adjacent area are essentially void of springs that could potentially be affected. The nearest springs to Panel 3R4E are approximately two miles away east and west of the panel (well outside the projected/potential limits of subsidence impacts).

schriste

Hydro Baseline Cumulative Impact Area

Analysis:

The amendment meets the State of Utah R645 requirements for Baseline Cumulative Impact Area.

The proposed 3R4E 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 leases U-63214 and U-62453 were awarded to the Permittee in 1989. As the proposed 3R4E panel is located within these two leases and as baseline data and on-going water monitoring data was and continue to be provided to the Division, the CIA does not require a revision at this time.

schriste

Probable Hydrologic Consequences Determination

Analysis:

The amendment does not meet 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 and continuing with a more detailed analysis of the Quitchupah Tract (location of the 3R4E panel) in Appendix 7-17.

With the exception of subsidence, no surface disturbance is proposed or anticipated. The 3R4E panels are located within existing leases U-63214 and U-62453 (part of the Quitchupah Tract). The leases were issued to the company in 1989. As part of that Federal Mine Plan Determination, the potential impacts to hydrologic resources were reviewed and subsequently approved. The proposed area of mining for the 3R4E panel was evaluated for mining impacts. The difference between then and now is essentially threefold: 1) The orientation of mining has been changed from a north/south to east/west 2) The number of mining sections has been reduced from 4 distinct sections to one longwall panel and 3) The method of mining has been changed from room and pillar to long-wall mining.

Although the mining method has changed for the area of the 3R4E panel, during the issuance of the two aforementioned Federal Leases associated with the Quitchupah Lease, long-wall mining and its potential impact to ground and surface water resources was reviewed. However; due to the proximity of Panel 3R4E to the North Fork of Quitchupah Creek, additional information is needed to properly evaluate the probable hydrologic consequences.

The Permittee must revise the Probable Hydrologic Consequences Determination section of the MRP. The revision must provide a more detailed discussion as to the potential for subsidence to impact ground and surface water resources in the area of and adjacent to the 3R4E panel. Based upon a review of the proposed location of the 3R4E panel, it appears to be less than a ¼ mile north east of the North Fork of Quitchupah Creek. A large escarpment is located between the two. The potential impacts as a result of subsidence (e.g. stream flow alteration from spalling material) must be addressed. Upon review of Appendix V-17, it appears that longwall mining in the proposed location of panel 3R4E was not contemplated.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Probable Hydrologic consequences. Prior to final approval, the Permittee must address the following deficiency:

R645-301-728: The Permittee must revise the Probable Hydrologic Consequences Determination section of the MRP. The revision must provide a more detailed discussion as to the potential for subsidence to impact ground and surface water resources in the area of and adjacent to the 3R4E panel. For example, based upon a review of the proposed location of the 3R4E panel, it appears to be less than a ¼ mile north east of the North Fork of Quitchupah Creek. Additionally a cliff face/escarpment directly adjacent to the North Fork of Quitchupah will be undermined and subsided as shown on Plate 5-7. The potential impacts as a result of subsidence (e.g. stream flow alteration from spalling material) must be addressed.

schriste

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 3R4E panel(s). The Permittee has updated Plate 7-3, Hydrologic Monitoring Stations to accurately reflect the proposed mining activity in the 3R4E panel mining activity.

schriste

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 3R4E 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.

schriste

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 3R4E.

schriste

Maps Vegetation Reference Area

Analysis:

The amendment meets the State of Utah R645-301-323 requirements for maps and aerial photographs.

A vegetation map of the Quitchupah Lease is in the MRP as Plate 3-1

A map showing the location of raptor nests in proximity to the potential subsidence area is shown on drawing 4East.dwg.

lreinhart

Operation Plan

Mining Operations and Facilities

Analysis:

The amendment meets all the State of Utah R645 requirements for Mining Operations and Facilities.

The amendment meets the requirements of R645-301-523, -526, and 528 by addressing a description of the mining operation, method of coal mining, engineering techniques, anticipated annual and total production of coal by tonnage, and major equipment to be used for all aspects of those operations proposed to be conducted during the life. The amendment does not contemplate any changes beyond the orientation of the 3R4E panels than what was previously approved within the MRP. Plates 5-7 was updated to show the panel orientation change on the 5 year projection plan. Plate 5-10 was updated to show the potential subsidence limits associated with the change in the panel orientation. Plate 5-11 was updated to show the overburden thickness above the changed panel orientation.

cparker

Air Pollution Control Plan

Analysis:

The amendment meets the State of Utah R645-301-422 requirements for air pollution control plan.

Volume 1, Chapter 4, Section 4.2 pages 4-18 through 4-20 discusses air quality and compliance information. The amendment does not warrant changes to the existing air pollution control plan.

lreinhart

Coal Recovery

Analysis:

The amendment meets the State of Utah R645 requirements for Coal Recovery.

The amendment meets the requirements of R645-301-522 due to a discussion of the measures to be used to maximize the use and conservation of the coal resources. The 3 Right 4 East panels are located on existing leases U-63214 and U-62453, part of the Quitchupah Tract. The mine plan shown on Plate 5-7 will occur only in the Upper Hiawatha coal seam with approximately 900 feet or more of overburden. No surface disturbance is anticipated beyond subsidence. This amendment did change the orientation of the panels as shown on Plate 5-7, 5-10A, 5-10C, and 5-11. The approved R2P2 for the sufco mine is on file with the BLM.

cparker

Subsidence Control Plan Renewable Resource

Analysis:

The amendment meets the State of Utah R645-301-525.130 requirements for Subsidence Control Plan with a renewable resources survey.

The requirements of R645-301-525.130 are met in the amendment as the Permittee presented a clear subsidence plan for protected areas. Appendix 2-7 was updated which includes the Supplemental Environmental Assessment of the Quitchupah Lease track addition, originally prepared in 1989. The report concluded that mining induced subsidence will have minimal impact on cultural resources.

cparker

Subsidence Control Plan Renewable Resource

Analysis:

The amendment meets the State of Utah R645-301-332 requirements for describing impacts of subsidence to fish, wildlife, and vegetative resources.

Volume 1, Chapter 3, Section 3.3.2 page 3-37 provides a description of the anticipated impacts of subsidence.

Generally, vegetation within the lease and permit areas outside of disturbed areas is protected from mining related impacts, such as subsidence, by the depth of overburden and depth of soil. Experience in mining the Pines and Quitchupah leases has shown that upland vegetation does not appear to be significantly affected by subsidence.

lreinhart

Subsidence Control Plan Subsidence

Analysis:

The amendment meets the State of Utah R645-301-525.400 requirements for Subsidence Control Plan.

The requirements of R645-301-525.400 are met in the amendment as the Permittee presented a clear subsidence plan for protected areas. Plate 5-10 was updated to show the potential subsidence limits associated with the change in the panel

orientation. Plate 5-11 was updated to show the overburden thickness above the changed panel orientation. Section 5.2.5.1 details all measure taken to minimize subsidence impacts to perennial streams. Sheet 1 within the amendment shows a predicted subsidence of up to two feet crossing the escarpment.

cparker

Fish and Wildlife Protection and Enhancement Plan

Analysis:

The amendment meets the State of Utah R645-301-333 requirements to describe how using best technology currently available to minimize adverse impacts to fish and wildlife, including compliance with the Endangered Species Act.

Volume 1, Chapter 3, Section 3.3.3 pages 3-38 through 3-41 provide a plan to minimize disturbance and adverse impacts to fish and wildlife.

Noise, created from the operation of the mine, is not expected to increase in the existing areas of disturbance associated with the mining activity, not even with the addition of any ventilation intake portals along the cliffs. These portals are only for intake air. The present exhaust fans are at the mine site and at the 4 East Portal in Quitchupah Canyon.

lreinhart

Fish and Wildlife Bald and Golden Eagles

Analysis:

As noted on page 3-10, an active Golden Eagle territory has been observed within the escarpments of the proposed mining area. The Permittee states the nests within the territory will be surveyed in 2017 but does not provide any protection or mitigation measures should an active nest be located. Therefore, the Division cannot make a finding that the proposed operation will not affect the continued existence of Golden Eagles, their young, or their nests. The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs.

Deficiencies Details:

R645-301-342 and 16 U.S.C. 668-668c: The Permittee must provide a plan for the protection of Golden Eagles in accordance with the Bald and Golden Eagle Protection Act. The Permittee must provide evidence of acquisition of a Take Permit issued for known Golden Eagle nest locations within the subsidence zone.

lreinhart

Vegetation

Analysis:

The amendment meets the State of Utah R645-301-331 requirements for protection of vegetation.

Although it is unlikely subsidence would impact vegetation, Volume 1, Chapter 3, Section 3.3.2 page 3-37 through 3-40 provides protection measures for vegetation.

lreinhart

Hydrologic Ground Water Monitoring

Analysis:

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

Appendix 7-17 discusses the groundwater monitoring that's conducted in the Quitchupah Coal Lease Tract (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. 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. Upon review of the baseline data provided in Appendix VI-17, there are minimal spring sites in the area of Panel 3R4E. The closest spring sites that are monitored are approximately 2 miles away (well outside the potential limits of

subsidence).

schriste

Hydro Surface Water Monitoring

Analysis:

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

The current water monitoring plan identifies three surface water monitoring sites in the adjacent area to panel 3R4E (two above the panel and one below). Monitoring site 06D is located on the South Fork of Quitchupah just above the confluence with the North Fork of Quitchupah Creek. Monitoring site 06D has been monitored quarterly since 2012. Monitoring site 007 is located above panel 3R4E and has been monitored quarterly from 1979 to the present. Monitoring site 042 is located downstream from panel 3R4E and has been monitored quarterly since 1979 to the present.

schriste

Maps Affected Area

Analysis:

The amendment does not meet the State of Utah R6545 requirements for Affected Area Maps.

The Permittee must revise all plates that depict the limit of potential subsidence. Upon review of submitted Sufco Mine 3R4E Projected Subsidence, Sheet No. 1 and the depicted projected subsidence contours, it appears that Potential Subsidence Limits, Plate 5-10 has not been revised accordingly. It appears that the projected subsidence depicted on Sheet No. 1 is not depicted on Plate 5-10.

Deficiencies Details:

The amendment does not meet the State of Utah R6545 requirements for Affected Area Maps. Prior to final approval, the following deficiency must be addressed:

R645-301-731: The Permittee must revise all plates that depict the limit of potential subsidence. Upon review of submitted Sufco Mine 3R4E Projected Subsidence, Sheet No. 1 and the depicted projected subsidence contours, it appears that Potential Subsidence Limits, Plate 5-10 has not been revised accordingly. It appears that the projected subsidence depicted on Sheet No. 1 is not depicted on Plate 5-10. The amendment and supporting maps should be consistent in the depiction and identification of the potential limits of subsidence.

schriste

Maps Mine Workings

Analysis:

The amendment meets the State of Utah R645-301-521.140 requirements for Mine Workings Maps.

The amendment meets the requirements of R645-301-521.140 which requires maps that clearly show all mine plans. Plates 5-7 was updated to show the panel orientation change on the 5 year projection plan.

cparker

Reclamation Plan

PostMining Land Use

Analysis:

The amendment meets the State of Utah R645-301-412 requirements for postmining land use.

Volume 1, Chapter 4, Section 4.1.2 pages 4-13 through 4-16 provide the postmining land use plan. The Applicant intends that the postmining land uses will be consistent with the land use plans prepared by the Forest Service. Final reclamation activities such as grading and seeding as detailed within this M&RP will be completed in a manner to provide uses of the lands consistent with those uses required by the U.S. Forest Service land use plans. Retention of pre-SMCRA highwalls is

discussed in Section 5.5.3.6.

The SUFCO Mine lease areas are predominantly U.S. Forest Service land managed under the multiple-use and sustained yield concepts. Present management emphasizes livestock grazing, wildlife, timber and watershed development.

lreinhart

Hydrological Information Reclamation Plan

Analysis:

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

As the proposed mining of panel 3R4E does not call for any additional surface disturbance, the approved hydrologic reclamation plan does not require a revision with this amendment.

schriste

Revegetation General Requirements

Analysis:

The amendment meets the State of Utah R645-301-341 requirements for the revegetation plan.

Volume 1, Chapter 3, Section 3.40 pages 3-46 through 3-49 provides the revegetation plan. Since this amendment does not include additional surface disturbance, the approved MRP is adequate.

lreinhart

Maps Reclamation Final Surface Configuration

Analysis:

The amendment meets the State of Utah R645 requirements for Final Surface Configuration Maps.

The requirements of R645-301-542 are met within the amendment as there is no change to the existing MRP plan of the estimated final surface configuration back to AOC. Plate 5-10 was updated to show the potential subsidence limits associated with the change in the panel orientation. Sheet 1 within the amendment shows a panel specific area of expected subsidence.

cparker

Bonding Determination of Amount

Analysis:

The amendment meets the State of Utah R645 requirements for Determination of Bond Amount.

The amendment meets the requirements of R645-301-830.140 as the proposed amendment does not include or require any changes to the current bond amount.

cparker

CHIA

CHIA

Analysis:

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

The proposed location of panel 3R4E 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 3R4E 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.

schriste