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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0150019
TaskID: 4632
Mine Name: COTTONWOOD/ WILBERG
Title: UPDATE VOLUME 10

Summary

The Division should approve the revised Chapter 5 of the Task ID # 4632 application.

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General Contents

Permit Application Format and Contents

Analysis:

All information provided in accordance with R645-301-100 such as ownership and control information, right of way information, surface and subsurface ownership is found in the PacifiCorps Legal/Financial Volume.

The particulars for the BLM ROW grant UTU-65027 are found in the introduction to Volume 10. The Right of Way area and permit boundary are 25.82 acres. The disturbed area acreage is outlined on Map 4-5 and stated on page 2 of Vol. 10 as 15.82 acres. The 15.82 acres figure is based upon recent aerial photography and AutoCad analysis. Appendix G of the Legal/Financial Volume acreage was also updated based upon this recent information.

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Operation Plan

Air Pollution Control Plan

Analysis:

The 1991 air quality permit DAQE-835-91 is included with Chapter 4 of the MRP.

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Topsoil and Subsoil

Analysis:

Six inches was salvaged from the roadway construction and stored on the road embankments (Section R645-301-526). Section R645-301-526, p. 13, Underground Development Waste, describes the salvage and live haul of 10 inches of soil from the north and west slope to the actively growing pile. It is thought that this material was used on the three existing reclaimed terraces of the pile. Plate 7-2 provides historical information on stripping depths from the site and does not show any further topsoil material available on the north and west slopes.

Plate 4-5 shows the site construction in 2013, made possible by an aerial survey in 2013. Plate 4-4 shows the contours in 1990 and the existing location of the topsoil and subsoil stockpiles. Plate 4-4 provides a calculation of the stockpile volumes based on cross sections shown on Plates 4-11a and 4-11b. Volumes contained in the piles are described as 31,629 CY topsoil and 40,317 CY subsoil on Plate 4-4.

The soil stockpiles are ASCA's, and the downhill slopes of the piles are protected by a silt fence (Section R645-301-234 and Section 526, pg 11).

Interim reclamation of topsoil stockpiles, sediment pond embankments and road outslopes is described in Section 341.200. Table 300-5 provides the interim seed mix of grasses, forbs and shrubs. Interim reclamation included seeding, raking seed, application of fertilizer and 2T/ac mulch as described on pages 11 and 12 of Section 341.200.

Annual monitoring of the site is described in Section R645-301-333.100.

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Reclamation Plan

General Requirements

Analysis:

Analysis:
The engineering section of the UPDATE VOLUME 10 submittal consists of page numbers 113 through 199. Each page of Chapter 5 is numbered from 1 to 21, with APPENDIX A, Geotechnical Investigation and Stability Analysis, and Appendix B, Physical and Chemical Analyses Sheet for the Cottonwood Waste Rock Site following.
The only revision identified in the new submittal of Chapter 5 is in the General requirements, section R645-301-541, page 17, top line; "As contemporaneous reclamation commences, 24 inches of subsoil and 12 inches of topsoil will be placed on the outside slope of the berm and revegetation of the slope will begin." The depths of subsoil and topsoil are the only changes submitted.
Page 17, under "Discussion of Salvaged Soil Volumes" , "Salvaged soil volumes have been calculated for the subsoil pile and topsoil piles. Calculations show that the waste rock site area can be covered with approximately 3.4 feet of subsoil and 1.7 feet of topsoil." This commitment meets the requirement of R645-301-553.252, which states "the coal mine waste will be covered with a minimum of four feet of the best available non-toxic and non-combustible material …".

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Topsoil and Subsoil

Analysis:

Map 4-3 shows the pre-disturbance contours. Map 4-4 is shows the topsoil pile construction and provides the volume of topsoil and subsoil stockpiled on site as 31,629 CY and 40,317 CY, respectively.

Exhibit XXI is a figure showing the typical berm and terrace construction and overall slope of 2.5h:1v for the waste pile. Section 242 and Section 541 p. 17 & 18 & 20 describe contemporaneous reclamation of the berms and final reclamation of the top surface of the pile with 24 inches of subsoil and 12 inches of topsoil.

As built calculations of topsoil and subsoil on Plate 4-5 show that there is approximately 31,629 CY of topsoil and 40,317 CY of subsoil stored on site.

Drill cores and outcrop samples of the roof and floor showed little potential for acid generation and a few samples with high SAR (Section 536). Prior to final reclamation, graded waste and berms will be sampled and analyzed according to the Overburden and Topsoil Guidelines. Two samples will be taken for every 200 linear feet of berm (Sec 536) and two sample

for every acre on the pile surface (Sections 541). Acid/Toxic waste will be covered with four feet of material. Non-toxic waste will be covered with twenty four inches of subsoil and twelve inches of topsoil (Sec 541).

Section 553 describes replacement of topsoil and subsoil from the road embankments on to the 5 acre road surface.

Soil sampling and analysis is described in Section 240 and Section 243,

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Hydrological Information Reclamation Plan

Analysis:

In response to the April 9, 2014 deficiencies, the Permittee has expanded the narrative in the MRP to further discuss and justify their proposal of removing the sediment control pond sooner than two years after the last augmented seeding during reclamation.
The Permittee discusses what is described as "alternative sediment control" that would be utilized post reclamation, to substitute for the sediment pond. Specifically the Permittee discusses pocking and surface roughening that will be used to intercept and trap sediment. Their RUSLE2 model was updated to include roughening as part of the reclamation.
While the analysis and model that is included in the MRP has been thoroughly discussed and completed accurately, due to the restriction in rule R645-301-763.100, specifically "In no case will the structure be removed sooner than two years after the last augmented seeding.", the sediment pond cannot be removed as discussed in the MRP as the rule currently reads.

Deficiencies Details:

R645-301-763.100 As discussed with the Permittee during a site inspection on April 1, 2014, rule 763.100 currently states: "In no case will the structure be removed sooner than two years after the last augmented seeding." Due to the definitive nature of this rule, the pond cannot be removed as currently described in the MRP. Please update the MRP to clearly state that the sediment pond will remain in place until at least two year after the last augmented seeding.

adaniels

Contemporaneous Reclamation General

Analysis:

Section 541 describes contemporaneous reclamation practices for the waste rock site. Rollins, Brown and Gunnell's 1989 stability report produced Figure XXI which illustrates the construction of bermed terraces to be reclaimed. Surface roughening will be used to control erosion (Section 552). Pocks will measure 1.5 ft deep by 3 ft. in diameter. Future interim and final revegetation will include fertilizer application based on soil analysis as described in Section 341.200, item 3.

Section 243 describes soil analysis upon which fertilizer applications will be based.

Interim monitoring of soils after contemporaneous reclamation was removed from the plan, because in 2014, after more than a decade, the interim reclamation did not show any symptoms of toxicity on the topsoil stockpiles or the outslopes of the reclaimed pile.

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Stabilization of Surface Areas

Analysis:

Section 341.200 describes interim reclamation of topsoil, road outslopes and the pond embankments, and describes the interim vegetation mix (Table 300-5).

Final reclamation treatments are described in Section 341.200 and include soil roughening (hand or mechanical breaking a soil crust, if any), seeding, fertilizer application based upon soil analysis, hand or mechanical raking, and application of 2T/ac mulch or an erosion control mulch blanket. The final seed mix is described in Table 300-6.

Terraces and berms (Section 553.140), and surface roughening (Section 552) will provide sediment control as vegetation becomes established. An annual inspection for rills and gullies and their repair is described in Section 301-350.

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