



Technical Analysis and Findings
Utah Coal Regulatory Program

PID: C0150019
TaskID: 4718
Mine Name: COTTONWOOD/ WILBERG
Title: UPDATE VOLUME 10

Summary

On April 25, 2013, the Permittee submitted an application to reorganize Volume 10, Cottonwood/Wilberg waste rock site mining and reclamation plan to meet R645 standards. There have been three (3) separate tasks and finding analysis as a result of the application. Other findings and analysis can be reviewed in tasks 4508 and 4329. The finding herein only addresses the deficiencies identified in task 4632. Each findings form addresses this application and is included by reference.

The following is a brief timeline of events related to this application.

- On 4/25/13 the application was received.
On 4/26/13 the Initial Review was completed and the Technical Review (Task ID #4329) commenced.
On 6/3/13 the application was denied due to deficiencies identified in task 4329.
On 4/9/14 the application was denied due to deficiencies identified in task 4508.
On 8/4/14 the application was denied due to deficiencies identified in task 4632.

Deficiencies Details:

None

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General Contents

Reporting of Technical Data

Analysis:

The application update to Volume 10 of the MRP does not adequately meet the minimum Clear and Concise requirements of rule R645-301-200. A side-by-side comparison between the updated Volume 10 submittal against the approved Volume 10 MRP exposed multiple technical errors in the submittal. Correcting these errors will allow updated sections pertaining to hydrology to be consistent with the current MRP. These technical errors include mislabeled symbols, incorrect placement of decimals places, and/or missing parentheses.

- 1) Appendix C, pdf page 199 -- Equation 1 needs parentheses to match approved MRP -- Volume 10 page 4-6: (P - 0.2S)2

- 2) Appendix C, pdf page 200, 2nd paragraph -- " $p - 0.2S$ " is incorrect, change it to " $p \geq 0.2S$ " to match the approved MRP
- 3) Appendix C, pdf page 205 -- the last equation on the page the peak flow should have an "=" sign not a "x" sign, to say "= 0.71 cfs"
- 4) Appendix C, pdf page 207, 1st paragraph – should state 'Manning $n = 0.035$ ' (not $n = 0.35$) to match the approved MRP – [Volume 10 page 4-14]

Deficiencies Details:

The application update to Volume 10 of the MRP does not adequately meet the minimum Clear and Concise requirements of rule R645-301-200. The Permittee needs to correct the following errors to reflect the corresponding equations in the currently approved MRP. The following deficiencies must be addressed:

- 1) Appendix C, pdf page 199 -- Equation 1 needs parentheses to match approved MRP – Volume 10 page 4-6: $(P - 0.2S)^2$
- 2) Appendix C, pdf page 200, 2nd paragraph -- " $p - 0.2S$ " is incorrect, change it to " $p \geq 0.2S$ " to match the approved MRP
- 3) Appendix C, pdf page 205 -- the last equation on the page the peak flow should have an "=" sign not a "x" sign, to say "= 0.71 cfs"
- 4) Appendix C, pdf page 207, 1st paragraph – should state 'Manning $n = 0.035$ ' (not $n = 0.35$) to match the approved MRP – [Volume 10 page 4-14]

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Reclamation Plan

Hydrological Information Reclamation Plan

Analysis:

Analysis:

Energy West Mining Company (the Permittee) resubmitted an amendment to update Volume 10 of the Cottonwood/Wilberg mine MRP to the Division of Oil, Gas and Mining (the Division) on November 6, 2014. This amendment to the MRP is processed in this findings report by the Division as Task ID #4718. Task ID #4718 is the Permittee's response to deficiencies found by the Division in a prior submission to update Volume 10 of the MRP, which was processed as Task ID #4632.

The hydrology deficiency within Task ID #4632 outlined an insufficient timetable for removing the sediment pond at the waste rock site. The Permittee proposed to remove the sediment pond during reclamation before seeding had had two years to establish vegetation in the reclaimed area. This proposal was deficient per R645-301-763.100 stating, "In no case will the structure be removed sooner than two years after the last augmented seeding". The Permittee's resubmission of Task ID #4718 addressing Task ID #4632 deficiencies and the updates to the hydrology section in Volume 10 of the MRP are analyzed in this findings report for completeness and adequacy per the rules R645-301-700. Hydrology.

Sediment Control Measures

The application update to Volume 10 of the MRP adequately addresses hydrologic performance standards as given under Sediment Control Measures in R6445-301-752. The Permittee's addition to this section proposes to control sediment erosion and runoff by roughening the reclaimed area with pocks. The effectiveness of this sediment control measure is modeled using RUSLE2. The proposed surface roughening reclamation with the supporting modeling technique reasonably shows sediment control measures implemented by the Permittee will adequately control and or prevent erosion from the reclaimed area.

Impoundments and Discharge Structures & Siltation Structures

The application update to Volume 10 of the MRP adequately addresses hydrologic performance standards as given under Impoundments and Discharge Structures in R645-301-753 and reclamation activities as a given under Siltation Structures in R645-301-763. The Permittee's reclamation sequence for reclaiming the waste rock site, sediment pond and access roads will be completed in two phases, Phase 1 and Phase 2, outlined in these two updated sections of Volume 10 in the MRP.

- 1) Phase 1, shown on Plate 4-6, will reclaim areas of the waste rock site that are highly susceptible to accelerated erosion rates. When Phase 1 is complete and the reclaimed area seeded, the two year time clock to begin Phase 2 will start. This will allow vegetation to establish for two years and stabilize the reclaimed bermed slopes of the waste rock pile. During this interim period between the two phases, runoff and sediment erosion within the disturbed area will be treated by the sediment pond before leaving the site.

2) Phase 2 reclamation, shown on Plate 4-7, is discussed in sections R645-301-526 Mine Facilities, Cottonwood/Wilberg Waste Rock Storage Facility Design; and in R645-301-541. During this phase it is important reclamation on top of the waste rock pile coincides with the removal of the sediment pond because at this point only vegetation on the reclaimed bermed slopes will treat runoff from the top of the waste rock pile before flowing off site. The reclaimed top of the pile will prevent or significantly reduce runoff volumes allowing the vegetated slopes to adequately treat runoff from the top of the pile. If the top of the pile were left un-reclaimed, high runoff volumes from this area would overwhelm any treatment effect from the established vegetation on the bermed slopes allowing untreated runoff to flow off site.

Findings:

The amendment to update Volume 10 of the Cottonwood/Wilberg MRP meets the minimum hydrology requirements per the Divisions rules R645-301-700.

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