



October 14, 2021

Sent via electronic mail

Ms. Dicki Peterson
Westmoreland Rosebud Mining LLC
Rosebud Mine – Area D
PO Box 99
Colstrip, MT 59323

Permit ID: C1986003D
Revision Type: Bond Release
Permitting Action: Deficiency
Subject: Completeness Deficiency; SL16, Phase I-IV

Dear Dicki:

The Department of Environmental Quality (DEQ) reviewed Bond Release Application SL16, for Phase I-IV release to determine if all the appropriate rules have been addressed. The following deficiencies must be addressed before the application can be ruled complete:

The SL16 bond release application area includes many reclamation fields for Phase III and IV which have not met the 10-year responsibility period, and does not describe which, if any, of these fields WRM proposes to fall under the exemption from the responsibility period contained in 82-4-235(3), MCA. These fields are in drainages 079, 077, 143, and 144.

DEQ's hydrology field inspection (June 14, 2021) determined that the east tributary drainage in the 077 drainage does not meet the performance standards for drainage basin reclamation in ARM 17.24.634 and does not meet the requirement in ARM 17.24.1116(6)(c)(ii), that a stable landscape has been established. The June 14th inspection report details specific reasons why this drainage does not meet the requirement of ARM 17.24.1116(6)(c)(ii) in the hydrology section and is demonstrated with photos 3 through 5 of that report.

The application and attached Hydrologic Demonstration Report (HDR) do not demonstrate that WRM has met the requirements of ARM 17.24.1116(6)(c)(iii) and 17.24.1116(6)(d)(iii). Surface water monitoring data has not been used as required by ARM 17.24.646(4) "determine whether the quality and quantity of runoff without treatment is consistent with the requirements of this rule to minimize disturbance to the prevailing hydrologic balance, to demonstrate that the drainage basin has stabilized to its previous, undisturbed state, and to attain the approved postmining land use." Please include and use such data to support this demonstration.

October 14, 2021

Page 2 of 4

Section 4.2.1.1 of the HDR discusses premine channel morphology measurements, and that postmine drainages were constructed to restore the premine drainage pattern. Specifically, the HDR references Exhibits Q1, Q2, P, P1, P2, P5, and P6, and Tables 7-11 (citation to which rule or exhibit please). These references to postmine PMT plans are dated to 2000. Table 14 (HDR) only addresses postmine catchment area, however it fails to differentiate SL13 and SL16 drainages. However, no postmine (as-built) measurements were included to compare with premine measurements. This geomorphic discussion lacks relevant detail as to which drainages associated with SL13 are directly comparable to drainages associated with SL16, and why the case can be made for their comparison. Please provide sufficient materials to address this concern, satisfying ARM 17.24.634. Relevant comparisons metrics include the following:

- Basin slope
- Basin length
- Elongation ratio
- Basin relief
- Basin relief ratio
- Total stream segment length
- Drainage density
- Main channel length
- Main channel sinuosity
- Main channel elevation difference
- Channel slope
- Valley length

Section 4.2.1.2 describes that runoff modeling “demonstrates the establishment of surface and channel hydrologic function and minimization of disturbance to the hydrologic balance.” Additionally, Section 4.2.2.1 states “sediment modeling completed for these drainages confirms that TSS concentrations for the reclaimed PMT are comparable or lower than in pre-mine surface water runoff.” These statements are contrary to the nature of modeling, which is a predictive tool. Modeling predictions are demonstrated and confirmed by calibration and verification to measured data. The runoff models applied here are purely hypothetical as they are not calibrated to any site-specific measured data. During mine permitting, predictive models are appropriate. Bond release requirements are written in the past tense, requiring demonstration that the previously predicted results of mining and reclamation have occurred. If modeling is to be relied on for this demonstration, the model must first be demonstrated to be calibrated to a reasonable level of accuracy and use site specific input values based on data from the modeled catchments.

Data collected from sediment ponds is likely biased low when considering TSS because the purpose of the ponds is to cause TSS to settle out of the water column. Given the extensive, apparently recent sedimentation observed by DEQ in Pond 077 during the June inspection, DEQ does not have confidence that TSS data reported for ponds are a reasonable representation of TSS concentrations in runoff. This data could be useful to provide an estimate of the TSS of inflowing water from reclamation if provided with appropriate

October 14, 2021

Page 3 of 4

context, such as how recently a runoff event occurred prior to sampling, and what is the approximate expected rate of sediment settling in the pond.

Figure 14A, the premine potentiometric map, is not accurate based on data presented in the Figure 16 hydrographs. The hydrographs show measured water levels pre-mining in several Rosebud Coal wells located in the area the map shows as dry. Please create an accurate pre-mining potentiometric map using the data presented in the hydrographs.

The mining progression depicted in Figure 3 is unreadable due to the randomized color ramp. Please use a progressive or user input color ramp to improve readability.

Field D20305 has POND listed in Table 2 and Table 4 of the bond release application under Last Seeding Date, however this field includes areas not within the high-water level (HWL) of PO-077. During the June 14, 2021, hydrology inspection, this area was observed to be largely unvegetated and dominated by erosion and deposition of sediment. Areas above the pond HWL should be soiled and seeded to provide for adequate vegetation establishment and to prevent erosion at the inlets to the pond.

The HDR describes sediment yields as one of the identified probable hydrologic consequences in section 2.1.3; specifically, the Potential Long-Term Impacts were described as:

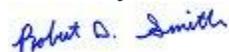
"By establishing topography, soil qualities, and vegetation that resemble premine conditions and by developing the approved PMT, long-term effects on the sediment yield are minimal."

The narrative (Section 4.2.1.2) of runoff and sediment yield modeling associated with SL13 and the associated Table 15 does not demonstrate that topography, soil qualities, or vegetation resemble premine conditions. Please include relevant data, comparisons (e.g. slope, percent cover, aspect), and demonstrate that the requirements of ARM 17.24.633(1) and (5)(b), and ARM 17.24.646(4) are satisfied.

Upon receipt of acceptable responses to these deficiencies, DEQ will determine the application to be complete.

Please feel free to contact me with questions regarding this letter.

Sincerely,



Robert Smith, Supervisor
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October 14, 2021

Page 4 of 4

C: Jeff Fleischman, OSM Casper Office
Erica Trent, OSM Denver Office
Frank Bartlett, OSM Casper Office

Gilbert, Sharona

From: Gilbert, Sharona
Sent: Thursday, October 14, 2021 8:54 AM
To: Peterson, Dicki
Cc: jfleischman@osmre.gov; etrent@osmre.gov; Shaeffer, Elizabeth; Bartlett, Franklin P; Giovetti, Debbie (dgiovetti@osmre.gov); 'mcalles@osmre.gov'; DEQ AEMD Coal
Subject: C1986003D SL16 Completeness Deficiency
Attachments: SL16_WRMD_CompletenessDeficiency_Rnd2.pdf

Please see attached correspondence. Have a great day!

Sharona Gilbert

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*The best laid schemes o' Mice an' Men,
Gang aft agley ~Robert Burns*