



November 26, 2018

Sent via ePermit system

Ms. Dicki Peterson
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Permit ID: C1984003B
Revision Type: Permit
Permitting Action: Deficiency
Subject: C1984003B; Round 3 Acceptability Deficiency

Dear Dicki:

The Department of Environmental Quality (DEQ) has completed its acceptability review regarding Western Energy Company's (WECO) amendment application (AM5) for SMP C1984003B. The following deficiencies must be adequately addressed before DEQ can determine the application acceptable:

ARM 17.24.303(1)(b): Please update the pdf attachment for this section to match the legal description of access.

ARM 17.24.303(1)(o): Please update the table for 303(1)(o) to include all the sections for T1N, R40E, that were listed in the public notice.

ARM 17.24.303(1)(s): The currently approved acres in Table 303-1 do not match what DEQ has in the database for Rosebud Mine Area B, which is 6,045 acres. Please adjust the acres in the table so they match total acreage of 6,045.

Please provide a disclaimer of the variability of the amount of coal mined each year for Table 303-2.

Numerous discrepancies remain in Table 303-3. Pursuant to ARM 17.24.302(1), WECO must change BXS 84 from year 10 to 18, BXS 76 from year 10 to 15, BXS 65 from year 19 to 11, BXS 89 from year 11 to 19 and add mine cuts BXS 69-2, 70-2, 71-2, 10-1 and 92-2 to the table.

ARM 17.24.304(1)(e): The following issues need to be addressed with the baseline information presented in "Appendix B – Baseline Hydrology Data.pdf":

1. The March 2017 surface water field sheets are included twice, please remove one set.
2. SW-301, 5/31/17 does not have an associated field sheet, please provide.
3. SW-302, 5/31/17, does not have an associated field sheet, please provide.
4. All GW Sites, 12/23/16 listed as date for attempted GW monitoring by IML, SW field sheet indicates IML was on site 12/27/16.
5. WD-204, 5/12/14, field sheet shows well pumped at 9 gpm for 18 minutes (162 gal), field data table lists purge volume of 72 gal.

ARM 17.24.304(1)(f): Appendix B: DEQ discovered the following inconsistencies that need to be addressed. Additionally, DEQ recommends that WECO review the remaining data entries for accuracy prior to resubmittal.

1. Surface water field data sheet for SP-300, 9/16/15 indicates that routine, field duplicate and field blanks were taken. The measurements for the field duplicate were not recorded and the values listed in the database are the same as the initial sample.
2. The lab data table (Attachment F) still erroneously lists the sample taken at SP-300 on 5/22/14 as Sample ID SP-301. (The comments for this sample correctly identify it as SP-300). Please correct this in Attachment F.
3. Data sheets exist for field blanks taken at SW-301 and SW-302 on 4/17/15, but these blanks have been omitted from the database.
4. Please review all baseline data and update the database as necessary. Please also include all field data sheets for each baseline data entry.

ARM 17.24.305(1)(a): Not all permit layers have been tagged; examples are Mineral Ownership and Adjacent Landowners. Please ensure that all relevant permit layers have been tagged for searchability.

ARM 17.24.305(1)(r): "Area B AM5 Exhibit C Post-Mine Vegetation 2017-09 SP.pdf" does not use the most recent version of the post-mine topography. The locations of the proposed post-mine revegetation communities must be revised to be consistent with and appropriate for their respective landscape positions on the final version of the PMT.

ARM 17.24.305(1)(z): The certification provided in Appendix O, Attachment T, should also certify Figure 12, Figure 13, Figure 66A, Figure 69, and Figure 70.

ARM 17.24.305(2)(c): The ramp name annotation on Exhibit A and the topography elevation annotation on Exhibit U must be made clear and legible.

ARM 17.24.308(1)(a): The size of stockpile SS-6 was increased. Pursuant to ARM 17.24.302(1), Table 308-1 must be updated to reflect the increased size depicted on Exhibit A.

Exhibit A depicts a haul road configuration that does not correlate with the mine sequence. The main haul road to the BXS pits conflicts with the timing and mining of the BX 6 through 19 and, in consideration of the revised Exhibit A, Ramp SW3 passes through active mining Cuts BXS 18-1 through BSX 39 in route to concurrent mining in Section 25 and 26 (BXS 40 through BXS 64). Pursuant to ARM 17.24.302(1), the inaccurate information depicted on Exhibit A must be changed or, pursuant to ARM 17.24.308(1), WECO must describe the engineering techniques used to mine at the same time as the main haul road and Ramp SW3 are proposed to be used.

All ramp locations heading northeast off the main haul road to boxcuts BXS 65 and 65-1 appear to be too steep for the current haul truck fleet. One of the following must be changed: which pass will be the boxcut, the ramp configuration and location, or the haul road location.

ARM 17.24.312(1)(d)(iii): Some disturbance near the west side of Section 24 is no longer necessary due to the realignment of the roads in this area. The destruction of the rock outcrop feature at state plane coordinates 2,679,166 East, 586,613 North by highwall reduction seems unnecessary. Please evaluate if disturbance can be reduced in this area to preserve habitat features. Additionally, the life-of-mine disturbance limits in Sections 13 and 24 are located a substantial distance from the mine passes. There appears to be no reason for disturbance to occur in much of this area. Please revise the limits of disturbance in this area to accurately reflect the actual expected area of disturbance.

ARM 17.24.313(1)(c): DEQ acknowledges WECO's commitment to submit a revised bond after the

PMT plan is acceptable.

ARM 17.24.313(1)(d)(i): Exhibits I and II depict a time after mining has progressed through the southwestern half of mining passes in BXS 65 through BXS 112. The plan for backfilling must include a better description of the location of boxcut material from the opening of pass BXS 65. If spoil is all cast south, it could remain in a pile (unreclaimed) until mining returns to pass BXS 89 in year 19. If this is the case, WECO should designate another temporary "SS" stockpile and add narrative or range diagrams to better describe the mining method (ARM 17.24.308(1)).

Sequencing or ramp/haul road problems could exist in the proposed mining of passes BXS 69-1 and BXS 89-1 both of which are mined in year 7: these mine passes are only 700' apart and the ramps into these mine passes need to be over 1000' long. Range diagrams pursuant to this rule and narrative, pursuant to ARM 17.24.308(1)(a), must be submitted to better clarify activities through year 7 in this area.

ARM 17.24.313(1)(d)(iv): Pursuant to 313(1)(d)(iv), the topography depicted on Exhibit B must meet the performance standard of grading affected areas to the approximate original contour of the land prior to mining. Regarding this, WECO must address the following two concerns:

The original topography had many more second and third or higher order tributaries than depicted on the proposed PMT map. While narrative in 501(4) attempts to address this issue, ARM 17.24.313(1)(d)(iv) requires "a map showing the postmining topography that the applicant proposes to meet at the time of final bond release." Additional tributaries must be added to more closely approximate the pre-mine drainage density condition. DEQ suggests the addition of a line designating approximate locations and lengths for these tributaries without contour line alterations in the location of pre-mine Lee Coulee drainages 6, 7, 8, 9, 11, 12 and 14.

To add clarity pursuant to ARM 17.24.302(1), WECO must add a statement to the PMT map legend tying the map to the 501(4) discussions regarding the above mentioned tributary line designations that do not have corresponding contour line alterations.

Grading would be delayed under Ramp SW6 until use of the ramp is finished because the ramp is located under a large post-mine hill. Pursuant to ARM 17.24.601(1), roads (which includes ramps) must "not delay or prevent recontouring and revegetation on immediately adjacent spoils". The location of Ramp SW6 must shifted to the west under a post-mine drainage or the PMT must be changed.

ARM 17.24.313(1)(f)(i): The following issues were identified with the updated "Area B AM5 EXHIBIT V1 thru V14 Drainage Design.pdf":

In Exhibit V-5 and Exhibit V-8, the ERM channels for Richard Coulee in the west half of Section 29 (upstream from disturbance) do not match the pre-mine channel. Outside the disturbance boundary there should be no change to the pre-mine channels.

In Exhibit V-10, the post-mine end station should be the same as the pre-mine end station for South Fork Richard Coulee to make the pre-mine and post-mine channel profiles comparable.

These exhibits will need to be updated with any changes to the post-mine topography.

ARM 17.24.314(3): The following deficiencies were identified in "Appendix O - Probable Hydrologic Consequences 2018-06.pdf":

Section 3.2.9 and Section 3.3.8 should be updated when DEQ finalizes the AVF determination for Richard Coulee.

Section 3.3.4.5 does not discuss all the potential impacts of mining on some wetlands:

1. Wetland G300 will be physically disturbed by haul road construction (buried by fill).
2. Wetland G012 is located within the disturbance boundary and will likely be disturbed for stockpile access roads. Please provide further information whether or not this wetland will be disturbed.
3. Wetland G400 will be partially disturbed by new pond Rich-4.
4. Wetland G500 will be partially disturbed by highwall reduction and new pond Rich-6.

Please expand the discussion of probable impacts to wetlands to be more descriptive and include all probable impacts of mining, like discussions included for wetlands in the Area F PHC. Appendix O should include a reference to the wetlands mitigation plan in Operations, Fish & Wildlife Plan, Appendix N-1.

Section 4.4.3 discusses impacts of mining on alluvial groundwater generally, but this section does not include any discussion of the effects of replacing alluvium with spoil on groundwater flow and levels in the Richard Coulee alluvium upgradient from mining. Typically, spoil would be expected to have a lower permeability than alluvium, which may result in a damming effect where the upgradient alluvium meets spoil. Please discuss if this effect could result in any surface expression of groundwater.

DEQ will evaluate the conclusions of Anticipated Impact and Rationale columns in Table 36 and Table 51, and Comments and Potentially Impacted columns in Table 50 when all other deficiencies which may affect these conclusions are resolved.

In Attachment H, Table H-1, notes 10 through 12 are cited in the wrong location in the table. Please correct this table.

A more detailed explanation of the calculations represented in Attachment R, Figure R-1 through R-3 is necessary. The text should include more detail on how each parameter was derived and the formulas used to calculate the results presented in these figures. The figures should also be annotated to show where the parameters "length," "drop," and "width" were measured. Additionally, there are two different versions of each of these figures in Attachment R.

Appendix J: Page 2 of Appendix J, Protection of the Hydrologic Balance 2018-06.pdf refers to the development of probable hydrologic consequences (Appendix O) under section 414. Development of the PHC is mandated by ARM 17.24.314. Please correct Appendix J to refer to Section 314 as the correct rule citation.

Appendix O: Figures 39, 41, and 42 (Scenarios 1, 2 and 3 - Alluvial Control Volume) refer the reader to Table 1 for calculations of Q_a -in and Q_a -out, however, these calculations are listed in Table 12 - Input Variables and Assumptions Used for Groundwater Flow Calculations, Rosebud ABC PHC - Area B AM5 Amendment. Please correct this reference.

Additionally, these same figures (39, 41, 42) also refer the reader back to Figure 6 for details of the groundwater use within the control volume. Figure 6 does not support groundwater use in the control volume. It appears that site details supporting the water balance in the control reach are displayed in Figures 36, 37, and 40. Please review and revise the references to Figure 6 in the Water Budget Equation figures.

Finally, the Figures 39, 41, and 42 (Scenarios 1, 2 and 3 - Alluvial Control Volume) specify that Q_r is transient dependent on MPDES discharges. Please note that MPDES is misspelled.

Table 41, footnote (a) still references the October 2012 edition of Circular DEQ-7, please update the reference to the current May 2017 edition.

Table 46, footnote (a) still references the October 2012 edition of Circular DEQ-7, please update the reference to the current May 2017 edition.

There is a bookmark in Appendix O, The Probable Hydrologic Consequences 2018-06.pdf, for Appendix H (Tables H-1 to H-4 final), but there is no information present. The tables are part of Attachment H. Please either add the finalized tables to Appendix H in the PHC, or remove the bookmark and replace the references to Appendix H with references to Attachment H of Appendix O.

ARM 17.24.314(5): DEQ will evaluate if there are cumulative impacts of the Rosebud and Big Sky mines on the Rosebud Creek drainage. To support this evaluation please provide an estimate of the post-mine equilibrium spoil water quality and the post-mine steady state groundwater flux out of spoil in the Rosebud Creek drainage for Area B, Area E, Area D, and Pit 6. WECO may also provide the same estimates for Big Sky Mine Area A and Area B.

ARM 17.24.315(1)(d): The detailed pond designs do not use the most recent mine plan and post-mine topography. Please revise these designs when the mine plan and post-mine topography are finalized.

ARM 17.24.315(1)(d)(iv): Several of the sediment ponds, including Lee-1, Lee-3, LCT-1, Rich-1, Rich-4, and Rich-6, will be excavated to depths where they are likely to encounter groundwater. Please describe how groundwater inflow will affect the capacity and maintenance of the ponds.

ARM 17.24.321(1)(a): No information regarding this rule was provided for the haul road which runs through Sections 24 and 25 leading to the mine area in the Fossil Fork tributary of Lee Coulee. This road will be used to transport coal from a separate mine area for more than six months, thus is a haul road, not a ramp road. See ARM 17.24.301(108). Please provide a design for this haul road similar to the haul road leading to the Richard Coulee mine area.

Road cross sections, Figure 8a through 8e on pages 321-4 through 321-8 in the current permit, are required to address this regulation and must be added to the AM5 permit.

ARM 17.24.325(2) and (3): DEQ has not yet made written findings concerning this rule. Further evaluation of the subsequent rules will be completed after DEQ's determination is complete.

ARM 17.24.501(4)(c): Overall, the proposed PMT results in a substantial reduction in the number of gentle slopes (2 to 4 percent, see Exhibit T1). A large portion of these slopes were located on benches adjacent to Richard Coulee in the pre-mine topography, but no similar features are replicated in the post-mine topography. Please consider adjusting the topography to address this issue.

WECO did not make any changes or provide any response to these comments on slope diversity in the previous round:

In the northeast quarter of Section 28 the PMT shows a long linear slope both east and west of drainage Rich 65. The pre-mine topography in this area has a concave slope profile, with a steeper upper section and gentler lower section. Please modify the PMT in this area to more closely resemble the pre-mine topography.

Highwall reduction in the center of Section 29 and in the southeast quarter of Section 20 eliminates some pre-mine steep slope areas. Please consider modifying the PMT to minimize the disturbance in these highwall reduction areas and preserve pre-mine steep slopes.

In Section 29, the PMT adds an upper reach to drainage Rich 7 to the northwest of Rich 24, shifting the drainage divide north towards the Richard Coulee main channel. Please consider reducing the length, and increasing the slope of this reach to place the drainage divide nearer to its pre-mine position.

Increasing the elevation of the graded spoils in this area would minimize the need for the adjacent highwall reduction and more closely approximate the pre-mine ridge feature in this area.

In Section 20, the design of PMT drainage Rich 52 results in over 80 feet of excavation in the highwall reduction area adjacent to the pit. Please consider replacing PMT drainage Rich 52 with two or three shorter, steeper tributaries, like pre-mine drainages Rich 49, Rich 50, and Rich 52. This change would minimize highwall reduction disturbance and preserve the steep slopes in the area. The alignment of the main channel of Richard Coulee could also be shifted slightly south to reduce the need for highwall reduction in this area.

ARM 17.24.601(1): The following deficiency was previously included under ARM 17.24.313(1)(d)(iv) but is more appropriately associated with ARM 17.24.601. "Ramps SW5, SW3-A and SW3 are 8,000 feet to over 11,000 feet in length and cross the drainage divide between Armells Creek and Rosebud Creek. The permit contains a commitment to bring all but the last ~3,000 feet of ramps up to reclamation grade. A portion of these ramps may need to be left well below the grade of reclamation until mining is complete. This is allowed under the performance standards of ARM 17.24.601(1) after Western documents and justifies, and the Department approves, the need to delay recontouring of "immediately adjacent spoils". The narrative discussion of ramps must document the areas that will not "immediately" be brought up to grade and specify why. Specific reasons would include a discussion about the drainage divide, specific elevations, something about grades and any other supporting information."

Ramp SW3-A must be completely relocated because it would significantly "delay or prevent recontouring and revegetation on immediately adjacent spoils [ARM 17.24.601(1)] and is not required in the current sequencing of mine passes. If needed for mine passes BXS 27 through BXS 33, Ramp SW3-A could split off Ramps SW5 or SW3 at about pass BXS 25.

ARM 17.24.609(3): As discussed during a phone call, please remove the scoria pit located in Section 12 in the most recent AM5 mine plan (Area B AM5 Exhibit A Approximate Mine Plan 2018-07 SP.pdf) that is not on the currently approved mine plan for Area B or the previous mine plan provided for the AM5 application.

ARM 17.24.634: Deficiencies in drainage basin reclamation have been identified in 17.24.313(e)&(f) and 17.24.501(4).

ARM 17.24.713(1): In the Revegetation Plan (Part 1), in the attachment 17-24-713, the end of the paragraph states ARM 17.24.313(5)(e). This ARM does not exist. Please delete ARM 17.24.313(5)(e) and replace with ARM 17.24.313(h)(ii).

ARM 17.24.716(3): Please include language at the end of the sentence of ARM 17.24.716 (3): "Purity and germination percentages must be documented."

ARM 17.24.751(2)(f): Sites proposed for wetlands mitigation (Appendix N-1) are exclusively in the Armells Creek drainage, whereas most wetlands likely to be disturbed are in the Rosebud Creek drainage. While wetlands in adjacent drainages can be used for mitigation there should be some mitigation alternatives in the Rosebud Creek drainage.

Appendix N-1 Section 3.3, p. 3-5, states one of the waters (G700) will be impacted by "development of the high wall." This term is unclear as to the extent of the impact, and no mention is made of water 4-4/8 which will also be impacted by mining. Please state that waters 4-4/8 and G700 will both be mined out.

Based on the proposed mine plan, the descriptions in Appendix N-1, Table 3-3, are not accurate for several sites. These wetland sites are expected to be impacted as follows:

1. G011: Disturbed – buried under soil stockpile
2. G012: Within disturbance limits – likely to be disturbed for access road to soil stockpile
3. G300: Buried under haul road fill
4. G602: Partially buried by haul road fill
5. G400: Partially disturbed by highwall reduction, haul road fill, and excavation for pond Rich-4
6. G500: Partially disturbed by highwall reduction and excavation for pond Rich-6

Please make sure this table is consistent with the expected impacts of the proposed mine plan.

ARM 17.24.801, 802, 804, 805, and 806: Appendix Q (Alluvial Valley Floor (AVF) Baseline Information) has now been included. Subsequent material is contingent on DEQ's AVF determination pursuant to ARM 17.24.325(2)(b).

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

Please feel free to contact Robert D. Smith at 406-444-7444 with questions regarding this letter.

Sincerely,



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