



Brian Schweitzer, Governor

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November 29, 2012

Ms. Dicki Peterson
Western Energy Company
Rosebud Coal Mine Area C
P.O. Box 99
Colstrip, MT 59323-0099

Permit ID: C2011003F
Revision Type: N/A
Permitting Action: Deficiency
Subject: First Round Acceptability Deficiency

Dear Dicki:

The Department of Environmental Quality (DEQ) reviewed Western Energy Company's (Western Energy) submittal dated November 11, 2011 updated on May 7, 2012 and determined to be complete on August 1, 2012 and has the following deficiencies.

82-4-222(1), MCA: All plans must be of sufficient detail so they can be adequately reviewed. The following must be revised to provide sufficient detail:

All maps must have proper contour interval annotation: spot heights must be added and the frequency of contour elevation annotation must be increased.

Plans for soil and overburden storage must be included. To facilitate present and future description of stockpiles, plans for storage of soil and overburden must include specific identification of stockpiles (for example, T1, T2, T3 ... or OB1, OB2 ...).

The above principle applies to dragline passes: Pass F15 is located in six individual mining areas. Each individual mining area must have a specific identifier and mine passes must be labeled accordingly.

Ramps must also have a specific identifier.

The county road relocation is not correctly identified in Section 19, 20, 29, 28, and 27.

ARM 17.24.303(1)(a): The SMP numbers listed under this rule on page 303-1 are not required and need to be deleted.

ARM 17.24.303(1)(b): A description of access to the area affected from the nearest public highway must be added to this section. (i.e. from Highway 39, approximately 1 mile south of Colstrip, travel west on Castle Rock Road for approximately ___ miles.)

ARM 17.24.303(1)(g): Western Energy had some changes to their ownership and control. It has been updated in the AVS database. Please provide the revised tables to update the permit.

ARM 17.24.303(1)(l): The statement contained in addressing this rule must be certified.

ARM 17.24.303(1)(o)(i): A clarifying statement must be added to address mineral estates severed from the private surface.

ARM 17.24.303(1)(r) and 304: The disturbed acreage total in the table on page 303-19 must be revised. The 57 acres of duplicate disturbance should be subtracted from the total, it appears as if it was inadvertently added.

Table B-6 and subsequent tables in Appendix B require a disclaimer statement identifying rounding errors and that the true disturbed and permitted acres are set forth on page 303-19.

ARM 17.24.303(1)(x) and (y): The statements are confusing in that no mining has occurred prior to October 22, 2004 in Area F. The permit should state this fact.

ARM 17.24.304: Summary: 17.24.304 (and Appendix B) is inadequate and will need to be revised/updated. A review of the technical aspects cannot be done until all appropriate baseline data has been submitted. See specific comments below for some of the shortcomings in 304:

Baseline surface water quality and quantity data is insufficient to fulfill 17.24.304 (1)(f)(ii)(B): characterization of the "seasonal variations in water quality and quantity".

The tables in the Appendix B do not supply enough information and cannot be used in their current state to make any statement on baseline quality or quantity. SW-90, the only stream monitoring site, has flows that are only listed for June - September 2011 with no mention of flows in the winter or spring. It is unclear from Table B-13 if the flow rates were measured as an instantaneous flow, peak flow for a storm event, or if they are daily averages. There is no stream water quality data. Similarly, there is no explanation of Spring and Pond baseline water quality data. How was the data collected? What does it represent? What is the source water for the ponds (stream, spring, groundwater), are the ponds currently in use for cattle, how are they constructed, are the springs natural or enhanced, are they in use, etc.? Where is the baseline water quality analysis for ponds and springs (were field parameters only taken)? Adequate and appropriate an appropriate baseline surface water data must be submitted to provide for the evaluation of the current state of water availability and quality.

Insufficient information has been provided to demonstrate that the single monitoring station, SW-90, provides enough information to characterize the stream behavior, as well as water quality and quantity of Black Hank, Donley, Robbie McClure, and Trail Creeks. Additional baseline monitoring locations may be needed to adequately characterize the premine conditions for these drainages. DEQ requests that a meeting be set up to discuss this issue.

For all springs, please include an identification of the source and photo documentation of baseline site conditions.

ARM 17.24.304: Appendix B: There is substantial redundancy between Appendix B and 17.24.314. This is particularly apparent regarding discussions of water balance properties such as precipitation/recharge, infiltration, evaporation, discharge. Please eliminate redundancies, preferably by removing the extended discussion of water balance in 17.24.314.

In Appendix B- Hydrology, page B-2, it is stated that the McKay coal averages 9 feet. Reviewing the lithology logs for the McKay monitoring wells in Area F, only one of eight logs indicates the McKay is as thin as 8 feet. Based on the logs, the average thickness of the McKay would be approximately 13 feet. Please review and confirm the thickness of the McKay coal in Area F and change the stated thickness if appropriate.

Page B-2 & B-3: Please indicate where the test holes were “near” or “in the vicinity of Area F” for determination of overburden, McKay, and sub-McKay transmissivity. Aquifer test data for the Rosebud coal appears to be from Area C. Aquifer test data from Area F for all monitored intervals must be completed and included in the application. Flow data in Area F should be based on the results of this data.

Page B-3 – Discussion of alluvial materials or aquifers is more limited than the other water bearing units. The statement that “Robbie Creek, Donley Creek, and Black Hank Creek act as line sources of recharge to underlying strata” (page B-6), requires greater discussion of the alluvium. Please include information regarding lithology, thickness, water levels, etc. of the most recent alluvial monitoring wells (installed during September/October).

Page B-6: In examination of the lithology logs from alluvial wells WA-219, WA-220, WA-221 it is noted that these wells are completed below the bottom of the gravel and commonly penetrate and may be completed in a coal unit as thick as 8 feet thick. Well WA-221 is completed at 59 feet, far below any lithology that might be interpreted as alluvium/colluvium. The water levels and samples collected from these wells are not an accurate reflection of alluvial water. Please indicate and discuss this in the permit application. Well WA-221 may be listed as an overburden well or abandoned.

The lithology logs for the six alluvial wells installed after the application submittal will need to be inserted into Appendix L.

Page B-7: In the discussion of the McKay wells, second reference to the well names uses the WR (Rosebud) prefix rather than the WM (McKay) prefix; please correct.

Page B-8 – Please eliminate all references to drinking water standards on this page and subsequent pages. These standards only apply to public water supplies, not untreated groundwater. Likewise, please eliminate the reference to “mandatory EPA levels.”

In discussion of alluvial water quality, please note that Class III groundwater ranges from >2,500 – 15,000 uS/cm, not >2,000 uS/cm, as stated on this page.

Page B-9: Replacement of existing water uses is provided by 17.24.648. Only identification of suitable replacement resources is required by 17.24.304(f)(iii).

Please include a discussion of trace metals found above detection levels in baseline groundwater samples from Area F wells. Please indicate if concentrations were at or above any of the limits set in Circular DEQ-7.

Please eliminate Table B-2, as drinking water standards apply only to public water supplies, not untreated groundwater. As an alternative, a table showing the beneficial uses of groundwater according to class (A.R.M. 17.30.1006) and applicable DEQ-7 numeric limits for human health would be appropriate.

Please include surveyed locations of the wells in Table B-5.

In the groundwater water quality data tables (tables B-12a through B-12e), please eliminate the columns referencing EPA MCL's. Numeric limits for applicable metals listed in DEQ-7 may be substituted.

ARM 17.24.304(1)(c): A reference to Appendix K does not address this rule. The permit must identify or state the fact that there are no significant or unique features.

ARM 17.24.304 (1)(e): Probable Hydrologic Consequences (PHC) is not a component of this rule. PHC requirements are presented in ARM 17.24.314.

Please remove reference to PHC in this section.

ARM 17.24.304 (1)(f): Groundwater information related to this rule is included primarily in Appendix B.

Regarding groundwater information, please reference Appendix B in this section.

ARM 17.24.304(1)(f)(B): Requires the results of a minimum of one year of quarterly monitoring of groundwater and specifies, at a minimum, the analytes that must be included. Based on review of the groundwater water quality data tables (tables B-12a through B-12e) and the database recently submitted to DEQ, it is not apparent that this requirement has been met for the monitoring wells in Area F. Also, the tables, lab data sheets and database do not reflect the same, complete information. Some of the lab sheets included in Appendix B are for wells not in Area F, e.g. WO-162 and WM-173. Please correct the tables so that they include all analytical samples for Area F (only), the date collected, and the analytical results. DEQ must have an application that includes all baseline data and an electronic copy of all baseline data. Please check for accuracy and completeness before resubmitting.

In the Addendum B table, please put the date of the measurement for each well, not just the month.

ARM 17.24.304(1)(k): Appendix G addresses the soil survey. In the survey Selenium (Se) is suspect at .2 ppm average for the majority of soil samples analyzed. The justification for the soils being acceptable basically says that Wyoming DEQ levels are .3 to .8 ppm and that Montana's guideline is .1 ppm. The highest Se value of .5 ppm only occurs once since only one value is above .3 ppm the soils are acceptable. Essentially the justification uses Wyoming's guideline. Since we are in Montana this is not acceptable. A demonstration or more complete justification will be required before Montana will accept the soils as suitable.

ARM 17.24.305(1)(e): A descriptive name must be added to Exhibit A for the gas line; for example, the size and number of lines and if they are high pressure lines. The width of easement “corridors” around gas and power lines must be depicted or added to the legend.

ARM 17.24.305(h) Maps: Please provide a map that locates the sites as required by ARM 17.24.305(h). Currently Section 17.24.305(h) states that no public parks, cultural resources listed in the NRHP are present in the permit area, however the report provided by GCM states there were 83 sites located and recorded. Of the 83 sites, 47 were evaluated as not eligible for the NRHP, and only two were evaluated as eligible. However, a total of 34 sites are considered unevaluated. Until these sites are evaluated they are considered eligible and must be documented and mapped.

ARM 17.24.306: In the first sentence of the paragraph it refers to Treasure County as Treasurer County. Please correct the county name.

The legend / tables attached in the Prime Farmland Determination are unreadable. Please resubmit the attachment.

ARM 17.24.306 (1): The Attachment 306-A is improperly referenced as Attachment 302-A.

Please amend 17.24.306 (1) to reference Attachment 306-A instead of Attachment 302-A.

ARM 17.24.306 (1): Documents in Attachment 306-A has been poorly scanned and is not readable. 17.24.306 (1) requires the results of an NRCS consultation. This cannot be properly assessed if the results are illegible.

Please re-scan or re-create these pages so that they are legible and amend Attachment 306-A of 17.24.306 (1).

ARM 17.24.308(1)(a) and 313(1)(d)(i) and 313(1)(d)(v): Page 308-1 covers the general steps in mine operations and casually mentions the use of overburden trucks and loading equipment for boxcuts. Exhibit A depicts an apparent random smattering of small overburden stockpiles throughout the permit area. At least the first five years of mining requires a more detailed plan: how much box-cut spoil will go to stockpile or will the dragline cast box-cut out of pit or cast it south and rehandle it. Are the stockpile locations large enough? Without more explanation, including volumes, the mine plan appears to be incomplete and if the mine plan is not complete than the PMT, disturbance area, drainage control are all a guess. Please comply with the regulations and provide a more detailed plan.

ARM 17.24.308(1)(a): On page 308-2 the operator commits to postmine drainage surveys. This is not required by regulation.

ARM 17.24.308(1)(b)(ii): Please add a reference to the narrative, indicating which exhibit depicts storage areas.

ARM 17.24.308(1)(b)(v) and 609(2): Operations affect numerous power lines. DEQ and owners of these facilities must approve destruction or disruption of services. DEQ cannot

approve any plans for removal of the lines until DEQ confirms approval from the owners. Please provide proof of approval from the owners of these facilities.

ARM 17.24.310(1)(g): It seems that additional design factors must be considered when blasting near gas and power lines. This must be addressed in the response to ARM 17.24.305(1)(e) which reveals structures requiring protection.

ARM 17.24.313(1)(b): Please refer the three major steps in reclamation to the applicable rules. The three major steps include backfilling/grading, soiling and revegetation/seeding.

For example:

Backfilling and grading – Please refer to ARM 17.313(1)(d).

Redistribution of soil – Please refer to ARM 17.313(1)(g).

Revegetation/Seeding – Please refer to ARM 17.313(1)(h).

The example adequately addresses ARM 17.24.313(1)(b); no additional narrative is necessary.

ARM 17.24.313(1)(c): A bond calculation must be submitted. As proposed in your submittal, please submit a bond calculation after the PMT is determined to be acceptable.

ARM 17.24.313(1)(d)(iii): Calculations used in the derivation of the swell factor must be included.

ARM 17.24.313(1)(d)(v): The cross sections and cross section location map fulfill the needs for the permit document; however, DEQ cannot verify the spoil balance with only cross sections. One additional CAD drawing is required. Please submit a topography file containing mined out pit topography surrounded by premine topography.

ARM 17.24.313 (1)(e -f)(i-ii): Channel cross-sections and profiles presented in Exhibit V, and premine and postmine hydrology and geomorphology comparisons in Appendix B are of inadequate resolution, and do not meet the intent of ARM 17.24.313 (1)(e)(i) which requires “*a comparison of pre-mining and post-mining drainage basin size, drainage density, and drainage profiles as necessary to identify characteristics not distinguishable on the pre-mining and post-mining topographic maps*” The geomorphic characteristics presented in Exhibit V and Appendix B appear to be derived from computer analysis of topographic maps or DEMs, and therefore do not adequately distinguish or characterize existing channel shape and form, and preclude applicability to reclamation of appropriate channel habit and characteristic pattern as specified in ARM 17.24.634.

The permit application (p 313-4) states that “*Western Energy will provide the Department with premine and postmine hydrology and geomorphology comparisons. Drainage channel reclamation designs will be based on premine landscape conditions and achieving a long term relative stability of the landscape in a postmine condition. Aerial and ground surveys will be utilized to evaluate premine and postmine characteristics such as channel profiles, cross sections, patterns and separation of flow between adjacent drainages.*” It is not clear whether

aerial and ground survey data were used to describe and assess geomorphic habit and characteristics given in Appendix B (as noted previously, it appears that geomorphic information was derived from digital topography data.)

The permit application (p 313-4, 5) states that "*A discussion of other channels, some typical designs and discussions on general fluvial and geomorphic habit, pattern, and other relevant functional characteristics can be found in the "Drainage Classification Study", (see WESTERN ENERGY Hydrologic Resource Report Volumes).*"

Please consult with DEQ regarding appropriate field geomorphic surveys, conduct on-the-ground field surveys to characterize existing geomorphic habit and characteristics, and provide copies of all field survey data used to evaluate existing geomorphic habit and channel characteristics. Please submit relevant portions of the aforementioned "*Drainage Classification Study*" with the permit application.

ARM 17.24.313 (1)(f): In this section Western Energy commits to evaluating "channel profiles, cross sections, patterns and separation of flow between adjacent drainages." These analyses should be referenced for review. Appendix B has some analysis but this appendix does not go into detail regarding how drainages will be constructed to pass the 100-yr event. Were premine channels surveyed for the needed postmine reconstruction properties and if so, where is this information? Data supporting appropriate geomorphic reclamation should include, at a minimum, representative floodplain and channel surveys, valley & channel slopes, and other information as appropriate to assess geomorphic habit and characteristics as required by ARM 17.24.634. An appropriate reclamation plan should detail how geomorphic properties will be used in reclamation design. This comment also applies to (1)(f)(ii). Please consult DEQ regarding assessments and field data collection appropriate to reclamation planning and design.

ARM 17.24.313 (1)(g)(i): Paragraph 2, sentence 2, references 17.24.313 (5) (a). This rule number does not exist. Please correct the reference.

ARM 17.24.313 (1)(g)(ii): The language is unclear it says, "*Please see Appendix G for topsoil salvage depth estimates and Section 17.24.701 for topsoil removal.*"

I believe the intent is to salvage as indicated in section 701 (2); however, for a discussion as to how these depths were arrived at, see Appendix G. The language leads one to think Appendix G has the salvage depth designations. Appendix G discusses salvage depth options but does not designate which depths would be used. Rule 701(2) indicates what will actually happen on the ground.

Please adjust the language to state that Appendix G demonstrates salvage depth options, but reference 701(2) specifically for designated salvage depths.

ARM 17.24.313 (1)(g)(iii)(A&B): The language of 17.24.313 1 (g)(iii) indicates that Appendix G has the following information:

(A) Says;

"total acreages and volumes of salvageable soil of each lift from each soil component of each soil mapping unit;"

Appendix G contains a few options for soil salvage depths as well as acreages for soil types; however, there are no volumes calculated. Calculating expected soil volumes using Appendix G would result in more than one option.

Referencing Appendix G is necessary for the acreages of a soil type and location of the soil polygons. The soil survey is used to determine an average salvage depth which is used to salvage soil in the necessary strip ahead of mining. Only general changes may be salvaged separately (i.e. treesoil, topsoil, subsoil).

Please adjust the language to reflect soil salvage and volume correctly.

(B) Says;

"the anticipated thickness(es) of soil redistribution for each lift, and in total, on the area of land affected after regrading"

This section indicates that Appendix G contains the thickness of soil to be distributed on reclamation. Appendix G does discuss the thickness; however, the thicknesses that will be targeted and measured are indicated in the revegetation plan 17.24.313 1 (h)(i) in the Reclamation types discussion.

Please correctly reference where to find thicknesses of soil redistribution and the totals on the land affected after regrading.

ARM 17.24.313 (1)(h)(i): There are three revegetation types (Lowland Grassland, Lowland Shrub Grassland, and Lowland Shrub Complex) included in this portion which are not included in the reclamation. ARM 17.24.313 (1)(h) calls for a narrative of revegetation including the types and acreage for each. Exhibit C (Revegetation Map) has no account of these revegetation types. Table 313-1 (Premine and Postmine Vegetation Type Acres) has no account of these revegetation types. As these revegetation types are not included in the final revegetation, they need to be removed from the application.

ARM 17.24.313 (1)(h)(i): The Deciduous tree/shrub revegetation type has no "Standards" included for determining successful vegetation across this type. ARM 17.24.313 (1)(h)(x) calls for the measures to be used for determining success of revegetation.

Please provide a reference area or a technical standard to be used for this revegetation type.

The Skunkbush Sumac Upland revegetation type has the objective listed as establishing Skunkbush Sumac in this area. ARM 17.24.313 (1)(h)(iii) calls for the species to be used in reclamation to be listed. Though the specific species to be used in reclamation are listed in the revegetation type description, there is no Skunkbush Sumac in the seed mix to be applied across this revegetation type. Please add Skunkbush Sumac to the appropriate seed mix (Conifer Mixture Table 313-4).

In the lowland and upland Deciduous tree/shrub revegetation types there is a statement in the seeding paragraph including "In addition to the shrubs in the seed mix, ..." Neither of these revegetation types have seed mixes being applied to them. Please remove the portion of the

statement that is included in quotes above in both of these revegetation types so that the remainder of the sentence reads as follows: "Shrub-clump wildlife enhancement features will be established on 5% of the reclamation type by hand planting tubelings and/or bare root stock of species listed above under "Objectives" at a density of 300 plants per acre in a mosaic of small patches spaced unevenly across the reclamation type."

The Conifer Upland revegetation type is not formatted in **bold** as other revegetation types are. This change in formatting makes it unclear if this is an additional revegetation type as part of the application or not. Please change the formatting of the word "Conifer" to be in **bold** to keep it clear that this is another revegetation type listing.

Within the Conifer Upland revegetation type, the revegetation type description has a statement including "conifer type as described_below." Please removing the underscore between described and below and replacing it with a space.

ARM 17.24.313 (1)(h)(ii): Table 313-1 has more Premine Disturbed Acres listed than there are Premine Permit Acres for the Lowland Deciduous tree/shrub vegetation type. Please check the acreages listed as these values are either inaccurate, or it is unclear how there can be more acres of this vegetation type disturbed than there area acres within the proposed permit area.

In Table 313-1 the values for totals of acreage of Premine Disturbed Acres and Postmine Revegetation Target Acres are not consistent with the sum of the parts those totals are meant to include. It is unclear if there are acreages missing or inaccurately included in the table. These values are also referenced elsewhere in this application; therefore, please ensure all appropriate corrections are made.

Please amend Table 313-1 to include correct values. Please also make sure that where these values are also cited elsewhere in the permit that the corrected numbers are used in those locations.

ARM 17.24.313 1 (h): Revegetation Plan

Each reclamation type contains a soil section designating the re-soiling strategy for that type. For example, the reclamation type grassland will use an average soil laydown depth of 24 inches. Then a clarifying statement says: "*Soils will be replaced in two lifts of approximately equal depths. The average depth will be 24 inches (two 12" lifts). A minimum of 75 percent of the replacement sample depths will be 24 inches ± 6 inches.*"

This method was tested and it is possible to meet the target depth yet be outside the range indicated. The +/- 6 inch variance should be applied to the average of depth verification points for a sampled area. Using the point average will more accurately mirror how an area will be evaluated for bond release while retaining goals to achieve a variable soil laydown.

Cropland: On page 313-24 designates a 24 inch soil replacement. This meets the requirement for cropland; however, this section also states there will be a +/- 6 inch variance on replaced soils for 90 percent of the depth verification samples. Cropland soil must be replaced to at least 24 inches according to rule 764 (2)(ii)(A).

ARM 17.24.314 (1): The lengthy text in this section of the permit does not satisfy the requirements of the rule. Specifically, there is no discussion of what measures will be taken during and after mining to minimize disturbance of the hydrologic balance to sustain the approved post-mining land use and performance standards. The descriptive text regarding the hydrologic balance components would best be placed in Appendix B- Hydrology (17.24.304, baseline), rather than this section of the permit. Below are some examples of modifications that should be considered:

p. 314-2 - "additional precipitation data are now being collected..." Address how these additional data are being used. Do these data agree with the Colstrip station?

p. 314-5 - "Infiltration rates for this group range from slow (0.06 inches/hour) to moderately rapid (6 inches/hour) and are shown in Table 314-4. The average for the Area F permit is moderate (2.3 in/hr)." Table 314-4 shows infiltration rates ranging from 0.6 to 6.0 in/hr. Please change to make consistent throughout the text or table, whichever is correct.

p. 314-5 - 30% impoundment in Area F appears to be low, considering ponds and hydrologic controls should be blocking all flow from the disturbed areas. This is also cited under section 3, surface water quantity, and potential short-term impacts. Please explain how this percentage was derived.

p. 314-7 - "An annual infiltration of 0.06 inches could supply a potential outflow of approximately two (2) gallons per minute from a one square mile area." Where does the total infiltration of 0.06 inches come from and how was the 2 gal/min calculated?

p. 314-7 - "These saturated sediments slowly drain and supply a short period of base flow to these streams." More elaboration is needed as to the length of baseflow in streams, which drainages these reaches are in, and how these reaches affect vegetative communities and aquatic life. Are they associated with wetlands?

p. 314-7 - "The absence of larger and more numerous perennial segments of these streams suggest groundwater discharge to streams is not significant." Please remove this statement. Solely associating the lack of perennial stream segments with saturation and recharge is not appropriate without a thorough investigation. Intermittent and small perennial reaches may be locally important for aquatic and wildlife habitat.

p. 314-8 - The Groundwater Storage section should be moved or rewritten. All previous sections give only a broad overview of various hydrologic inputs and outputs (baseline) while this section gives an assessment of probable impacts.

ARM 17.24.314 (1)(a): The text at this location does little to meet the requirement of the rule, which is to discuss how the operator will provide protection of the quality of surface and groundwater systems. Please delete all superfluous text discussing mining processes that do not directly demonstrate or address protection of water quality. Below are some examples of text that must be corrected:

p. 314-9 "the rubble zone is probably thin but has a substantially higher permeability than the original materials". Has this been seen with data from the other permitted Rosebud Mine areas?

p. 314-9 Vertical permeability is stated to be higher, yet infiltration is stated to be comparable between reclaimed and undisturbed lands. This seems like a contradiction and this statement should be rewritten. Please provide supporting evidence for statements such as these (comparisons of pre- and post- mine); either modeled data or observations from other permitted Rosebud Mine areas.

p. 314-10 The discussion at the top of the page regarding Appendix D and overburden quality has no bearing on water quality, only on suitability for vegetation. It should be deleted and replaced with a meaningful discussion, including quantification, about how spoil (created by disruption of overburden) will change water quality and what is being done to protect groundwater quality in light of these changes.

p. 314-10 Western Energy commits to begin reclamation within a maximum of two spoil ridges. In 17.24.308(1)(a) the commitment is made to do reclamation within 4 spoil ridges. Make sure all references to spoil ridge numbers are consistent within the permit.

p. 314-11 Western Energy states that discharges are expected to produce desirable effects. If the discharges are expected to be insignificant, how will they produce desirable effects? Will the discharges last long enough to be used downstream? It was stated that flows in the creeks infiltrate rapidly. Are these flows not expected to infiltrate rapidly as well?

p. 314-11 – It is stated that because MPDES discharge water is of high quality, then it will produce desirable effects for downstream water users. High quality is a subjective terms as used here, and the state has specific definitions for what constitute ‘high quality waters’ (see MCA 75-5-103). Please remove reference to MPDES discharge water as ‘high quality water.

p. 314-11 – It is stated that ‘*premining channel morphology and gradient are documented by longitudinal and cross sectional channel profiles (Exhibit N). This documentation will be used to reclaim channels to their approximate premining conditions.*’ Cross-section profiles presented in Exhibit N and Exhibit V appear to be derived from digital topography at a scale that is inappropriate for the assessment and future evaluation of channel cross-sections, and cannot be used to reclaim channels based on geomorphic habit at the channel scale. All channel cross-sections should be measured on-the-ground using standard protocols for stream surveys and geomorphic assessment of stream channels. Note: see above comment related to this issue.

Please provide channel profiles and cross-sections at a scale appropriate for geomorphic assessment of channels.

p. 314-12 – The narrative states that ‘*the main channels of the major creeks will not be disturbed by mining.*’ Even though main channels will not be mined through, they will be impacted by mining through the interruption of surface or GW flows that feed these channels. Channels are formed and maintained by periodic GW and SF flows; thus interruption, modification or removal of these flows will have an impact on adjacent channels, and may result in geomorphic alteration of existing channels. This concept is not adequately addressed in this section.

Please amend or modify these statements.

ARM 17.24.314 (1)(b): - States that Western Energy must provide protection of the rights of present users of surface and ground water. Please explain how Western Energy will address the

interruption of livestock water to drainages listed to be mitigated during mining as required by 17.24.648. Additionally, please address any users of the wells outside the permit area likely to experience a decline in groundwater availability as a result of mining.

ARM 17.24.314(1)(c): - With regard to groundwater, the section offers a general assurance of protection for quantity based on restoration of aquifer characteristics, but fails to be more quantitative regarding where water quantity will be diminished during and after mining, for how long and what alternative sources will be supplied. Please address these requirements of the rule.

This section does not adequately address the protection of surface water quantity. Provide models, calculations, or reference an attached study that demonstrate that pre- and postmine runoff will be similar. How long will it take for infiltration rates, vegetation types, channel morphology, etc. to approximate premine?

p. 314-12 – Permit language addresses cuts adjacent to alluvium and the potential consequence of reduction to groundwater flow from bedrock units to alluvium and that “reduction in recharge to the alluvium will have only a small effect on downstream alluvial flows”. More information is needed regarding where mining adjacent to alluvium might take place in Area F and quantification of the affect on downstream alluvial flows. Has the reduction been calculated or estimated? Does the alluvium feed any intermittent reaches on the stream? Is there sub-irrigation? How will recharge to the alluvium be restored?

p. 314-12 - “Temporary impacts of sediment ponds are addressed in permit Section 17.24.314(1)(a)”. In 17.24.313, it is stated that some ponds may end up being permanent. How will this affect downstream water availability? Is there any idea which ponds will be made permanent? However, permanent ponds are not identified and their affect on downstream water availability and quality are not discussed.

ARM 17.24.314 (2)(a) “Roadways in many instances produce less sediment runoff than a disturbed drainage of equal comparison due to a compacted surface and combination of cross ripped and seeded side slopes on larger roadways” This paragraph is contradictory and confusing. Remove the first sentence which is not necessary in the permit

ARM 17.24.314(2)(b): With regard to discharge of groundwater, the permit application fails to consider the discharge of groundwater from the mine area through affected aquifers, not just as pit inflow to be discharged via the surface (see also ARM 17.24.643). Water quality limits on discharges for both surface water and groundwater are subject to all applicable state or federal laws. The operator must commit to narrative and numeric standards in the Montana Water Quality Act (75-5-301,302, MCA) and associated rules (A.R.M. 17.30.601 through 641 and 17.30.1001 through 1045).

ARM 17.24.314(2)(c): The general characteristics of the overburden rock as well as their hydrologic properties will be dramatically changed when blasted and backfilled into the pit. In the first paragraph, please eliminate the statement that spoil will be similar in lithology to premine lithology, as it will not. Other than infiltration/percolation through spoils, are there specific areas in the premine landscape that have been identified as likely to have greater infiltration or recharge capacity (e.g. clinker outcrops, drainages, etc.)? If so, where are they and

will they be disturbed? There are some recharge areas over Donley Creek drawn in the groundwater model. Will these be disturbed?

Please limit the discussion to recharge and eliminate the last paragraph regarding water quality.

ARM 17.24.314 (2)(d): In accordance with the new Annual Hydrology Report Guidelines, the monitoring schedule must be incorporated into the permit and will be a part of the Monitoring and Quality Assurance Plan (MQAP). Please do not reference the AHR for location of the monitoring plans. Please ensure the MQAP includes a clear and concise monitoring plan.

Please remove the statement about surface water monitoring being “logistically and technically difficult.”

ARM 17.24.314 (3): Overall the PHC is deficient and inadequate to predict the hydrologic consequences of mining in Area F; thus, it must be rewritten. It is advisable that Western Energy or their representative(s) consult with DEQ to plan for and achieve an acceptable PHC.

ARM 17.24.314(4): – This rule has not been adequately addressed. See ARM 17.24.314(3) above.

Appendix I: The drawdown model predicts the extent of drawdown impacts and is a vital part of the PHC determination and is necessary to complete a CHIA. However, the model results submitted with the application were not based on and therefore is not representative of the mine plan submitted with the application. The north and south extents of the mine plan submitted with the application have been expanded beyond the mine plan used for the model (shown in Figure 24). The model must reflect all anticipated mining in Area F.

As the hydrologic system in permit areas A, B, and C is not separated from Area F, please show cumulative drawdown for the projected life of mine in areas A, B, C and F so that the anticipated drawdown impacts to mining may be accurately represented.

Many of the figures in Appendix I are difficult to read. Hydrographs on figures, such as Figures 5 - 12, have numbers so small that they are illegible, diminishing their illustrative capacity. As these figures are important to the understanding of the hydrologic system, please enlarge the hydrographs to legible proportions. This may mean choosing a larger format. The electronic document should be formatted so that it may be printed in a legible format by anyone desiring to print it.

Figures 16, 23, 25, 26, 27, B-1, B2 and B-3 represent potentiometric head or drawdown contours superimposed upon a shaded relief map background. More contextual information (e.g. mine permit boundaries, proposed Area F boundary, township, range and section) is needed on these figures/maps. Also, the figures need to be enlarged to better to see and interpret them.

Please check all of the figure numbers referenced in the text. A few of the problems are listed below, but the list is not exhaustive:

p. 10: There is no page 2 of Figure 11.

p. 12: There is no page 4 of Figure 5.

p. 14: There are two page 1 of Figure 12

P. 22: The areal domain of the model is not Figure 14, but Figure 15.

Reference to the "EIS" throughout Appendix I needs to clearly identify the EIS referenced to avoid confusion with the Area F EIS.

ARM 17.24.315(1)(a)(ii): On page 315-1, the application states "General plans and cross sectional views of typical sedimentation ponds with emergency spillways are shown in Appendix J." No cross sectional views are included in Appendix J. Design drawings were found in CAD format and must be made part of the electronic "pdf" permit before we review the pond drawings.

ARM 17.24.315(1)(a)(v): A "certified statement" setting forth dates to submit detailed designs must be submitted. In addition, it may be easier to tie the "Date of Design" dates set forth in Tables J-1 to the dates submitted on Exhibit A. Date of design could be taken off the table and included in an all encompassing certified statement. These comments may change after review of the pond drawings as it seems these may be good enough for detailed designs.

ARM 17.24.315 and ARM 17.24.638(a): Ponds F-8 and F-16 are both proposed to be incised ponds within native drainages. To avoid a large nick point within the drainage Western Energy should consider an embankment in combination with the incised pond area. In the case of Pond F-16, an embankment would also minimize disturbance.

ARM 17.24.318: States that the historic places and other significant cultural resources are identified in Permit Section 17.24.304(2), this does not exist and should be changed to 304(1)(b).

Additionally, please describe the measures that will be used to minimize or prevent impacts to significant cultural resources identified in ARM 17.24.304(1)(b), the timing and tracking of these measures relative to the disturbance schedule, and how Western Energy will obtain approval of DEQ and other agencies as required in ARM 17.24.1131.

ARM 17.24.319: Please revise Exhibit A as it appears that soil stockpiles in Section 19 and the end walls of mine passes in Section 13 appear to be within 100' of the county road.

ARM 17.24.319, ARM 17.24.1134 and 1135: It appears the exhibits depict mine operations within 100' of a county road, relocation of the county road, and a haul road crossing a county road. These regulations require hearings, approvals, written findings before the county road is impacted. At a minimum, these regulations need to be addressed with commitments and timelines for completion of requirements not currently addressed in the application. Something must be put in the permit about the crossing of the county road by the haul road: e.g. traffic light, bridge, etc.

ARM 17.24.321(1): Sections 601-605 are mentioned on page 312-2 for specification of drainage control. Appendix J, Exhibits D and O both depict more specific information on drainage control than Sections 601-605. Please update page 312-2 to reference Appendix J and Exhibits D and O.

The discontinuous- short mine passes present operational challenges. Either the dragline will need to shut down every pass until the coal is removed or dragline walkways between

discontinuous passes will need to be constructed. This must be clarified in the permit. The approximate location of dragline walkways or roads connecting the discontinuous mine passes must be identified in plan view (Exhibit A). Exhibit D will also require updating, as these potential walkways cross major drainages and culverts would be required (for example mining associated with years 2025 and 2037).

ARM 17.24.321(1)(a) and 605(2): It appears as though a culvert must be placed where the ramp crosses Robbie Creek between Pond F-16 and culvert F-HR-14.

ARM 17.24.321(3): The professional certification statement on Exhibit O must be changed to comply with this rule.

ARM 17.24.321(4): Individual ramps must have unique designations. The designations must be depicted in plan view. Exhibit A would be a good map to illustrate this information.

There are numerous short mine passes along the south edge of mining that have no ramp access. Access must be identified.

ARM 17.24.322(2)(a)(i) and (iii): A narrative interpretation including nature, depth, and thickness of all known strata, overburden, and coal seams was not submitted.

ARM 17.24.322(2)(a)(ii): This rule requires total reserves within the permit area, not just recoverable reserves, and a description of the method used to calculate the reserves. There is an adequate description of the method found in response to 322(2)(b) that should be cut and pasted into (2)(ii).

ARM 17.24.322(2)(ii) and (2)(b): Table 322-2 and section 322(2)(ii) of the permit application identifies the “recoverable” and “mineable” reserves to be 70.9 Million tons (the terminology must be consistent). Exhibit L2 depicts large areas within the permit area that do not fall within one of the three coal leases identified in Table 322-2. Since ARM 17.24.322(2)(ii) is based on all reserves identified within the “permit area”, Table 322-2 must be revised to include all reserves identified within the permit area. All private coal could be added into one category on the table, but another row is needed to identify coal not mined because a coal lease has not been agreed upon.

As ARM 17.24.322(2)(b) requires a location of coal not mined, WESTERN ENERGY must submit a map corresponding to Table 322-2.

ARM 17.24.325: The potential alluvial valley floor (AVF) reconnaissance map referenced in the application and published by the Office of Surface Mining is not definitive for the presence or absence of an AVF. It is up to the applicant to provide geologic, land use, soil, vegetation and hydrologic information based on field data that supports the presence or absence of an AVF so that the Department may make an AVF determination.

ARM 17.24.631(3)(a)—General Hydrology Requirements: Appendix B is not the appropriate reference for the surface water drainage plan. There is no drainage plan to minimize pollution included in Appendix B.

ARM 17.24.639(1): Appendix J-5 states traps will be used if the drainage area is 10 acres or less. Page 639-1 uses 40 acres as a cut-off. The operator must either be consistent or add clarification.

ARM 17.24.639(5) – Sedimentation Ponds and Other Treatment Facilities: This section states that discharges resulting from 10-yr, 24-hr precipitation events are not required to meet MPDES permit standards. This statement is incorrect as alternative standards still apply. The MPDES permit from other Rosebud areas should be consulted for clarification.

ARM 17.24.645(1): With the adoption of DEQ’s Monitoring and Quality Assurance Program (MQAP), the monitoring plan is now part of the permit. As all monitoring wells are not monitored for water quality, please eliminate this word in the second paragraph.

The QA/QC Plan for data collection, management, and reporting must be modified to meet the guidelines in the MQAP and integrated into the application, at this location.

ARM 17.24.645(6): The reference to DEQ-7, 2004 edition is out of date. It is advisable to modify the permit language to state that *the latest publication of DEQ-7* will be used rather than using a specific date, as DEQ-7 is updated biennially.

ARM 17.24.645(8): Please indicate the dates for submission of the semi-annual and annual hydrology report per the new annual hydrology report guidelines.

ARM 17.24.646(3)—Surface Water Monitoring: Change statement that “monitoring will be conducted at appropriate frequencies to measure variations in solute concentrations...” to the wording of the rule “monitoring will be conducted at appropriate frequencies to measure normal and abnormal variations in concentrations...”. Surface water quality analyses for soluble and insoluble metals and solids.

ARM 17.24.701(1): Page 701-1 identifies a specific list of equipment to be used to salvage soils that does not include scrapers. This sentence is more limiting than required by regulation and should be deleted or revised.

ARM 17.24.702(6): Page 702-2 commits the operator to replacing soil on contour when there are no regulations for this and while the practice is rarely done.

This sub-section references 313 reclamation plan for soil laydown depths. Please add the appropriate subsection to the reference in 702 for clarification and ease of finding the lay down depth commitments.

ARM 17.24.761(2): Page 761-2 says no ambient air monitoring is required. Per ARM 17.24.311 an air pollution control plan is required. This will be part of the application for an air quality permit. Western Energy must apply for an Air Quality Permit prior to approval of the surface mine permit.

ARM 17.24.1001 Prospecting: Western Energy must apply for a separate notice of intent to prospect and prospecting permit when conducting drilling activities outside of the active SMP boundary. Please change the language to address this. Additionally, please add a statement that

Western Energy will notify DEQ with a letter and map for addressing locations of prospecting holes within the SMP boundary.

ARM17.24.1003 Renewal and Transfer of Prospecting Permits: Western Energy will not be submitting a renewal of a prospecting permit under the SMP for Area F. Please remove this language.

ARM 17.24.1005 Drill Holes: 17.24.1005(1)(b) please change abandonment to abandonment.

ARM 17.24.1013 Drilling: 17.24.1013(3) please change the sentence to state portable mud pits will not be used unless otherwise approved by DEQ.

ARM 17.24.1016 Bonding Requirements for Drilling Operations: 17.24.1016(3) Please change 0.1 acre to 1.0 acres in size.

Exhibits B & B1: The postmine contours contain an open pit area (Area C). This exhibit needs to be revised to show only postmine contours.

Basins BHCT-2 and RCT-7 do not have a postmine stream. Are these basins entirely overland flow or is the premine drainage going to be left undisturbed and used in the PMT? A drainage channel should be included for all basins unless the area is designed to only experience overland flow.

The stream line in DCT-7 does not connect to any other streams. Please connect all stream lines to form an appropriate network or note that the channel terminates at a local sink/pond. There are many drainage channels (tributaries in DCT-1, Black Hank Creek, etc.) that don't connect, although it is easily inferred that the premine channels would act as the connections. Update the PMT channels so that there are no channel gaps.

The unnamed drainage basin just southwest of DCT-5 needs to be reworked. The drainage channel is too close to the one in DCT-5 and it will be difficult to keep the two channels separated. Also, it is drawn right to the edge of the basin which is not stable; there is a high possibility of cutting into the next drainage in this design.

Exhibit H: CAD FILES FOR WATER MONITORING SITES 20111030.dwg: Is the stream layer generated from DEMs? It has a much lower resolution than the 1:24K NHD layer. For any stream assessments or calculations (stream lengths, drainage densities) based on digital data, the 1:24K NHD (detailed) stream line, or one derived from a recent aerial photo, should be used. The level of detail of the CAD-submitted stream layer (DEM?) is inadequate in some respects – the detailed NHD provides a better resolution at the mine scale level. Any relevant subsegments of tributaries not included in the NHD should be appended to existing NHD line layers. The DEM-generated stream lines underreport the actual stream lengths present on the ground, and in some cases, greatly misrepresent actual stream lengths, and consequent drainage densities.

If stream lengths and drainage densities are to be used for reclamation purposes (especially in comparison to pre-existing or baseline conditions), then actual stream dimensions from aerials or one-the-ground assessments should be used to characterize existing conditions. Stream lengths

extracted from digital topography data are not true stream lengths and should not be used in evaluation of impacts to streams or in designing stream reclamation activity.

Table B-7 provides geomorphic information on drainage basins and channels. Explain how this information was derived (“as determined from base and postmine topography interpretation”) – from what source was this information derived?

Elevations of many GW wells (layer = Ground Water Quarter) reported in the CAD tables are incorrect and appear to be ~2X the actual elevation

Please update the stream line layer to reflect actual stream lengths and drainage densities, as derived from aerials, detailed NHD, and/or one-the-ground field truthing. Additionally, provide descriptions on how geomorphic parameters in Table B-7 were derived and the elevations of GW wells.

Exhibit J: Some highwall reduction areas do not have a corresponding area with a change in postmine topography, but instead show that topography will be identical to premine. The PMT needs to be updated to include all highwall reduction regrading.

Exhibit N: The exhibit draws the channel profiles with stock dams in the profile. All dams should be pointed out on the profiles for clarity. The distance between the permit boundary and disturbance boundary for some of the profiles (e.g. Donley Creek, RCT-8, etc.) don't match the distance as measured on the map. Is the LOM disturbance boundary correct or are the measurements not to scale? How is there 0% slope on BHCT-6 in the middle of the profile?

Exhibits U & UI: The stream line in DCT-7 does not appear to connect to any other streams. Please connect all stream lines to form an appropriate network or note that the channel terminates at a local sink.

Basin BHCT-8 does not contain any drainage channels. Please place a drainage in this basin.

Appendix B & J: The modeling of premine, postmine, and worst-case runoff assumes rangeland and cropland only according to the Land Condition table in Appendix J. However, there are other types of vegetation in Area F (Exhibits C & E): various tree / shrub mixed areas and conifer areas. These need to be either incorporated into the models or a justification is required as to why these types of land conditions can be ignored.

Appendix B – Hydrology: This appendix seems to be a mixture of 304 and 314. Some of the passages repeat statements in 314 while other sections include information that is missing from the 314 section. 314, 304, Appendix B, and Appendix I need to be rewritten so that the PHC is clearly isolated from premine background data.

The appendix does not create a comprehensive picture of premine water quality and quantity. The document should focus on explaining premine data and creating a comprehensive picture of premine conditions. The following are examples of the type of analysis appropriate for 17.24.304. For springs, explain water sources, water availability and quality. For ponds, explain how much water they typically hold, how long they stay full, if they contribute to wildlife habitat, if they leak or provide prolonged base flow

downstream, and quality. For streams, characterize the typical yearly cycle of flows (spring melt water, summer storms, etc), correlation of water quality with types of flows, duration of flows, intermittent stream reaches, aquatic life, stream geomorphology and stream characteristics, and overall water quality. For groundwater, analyze each aquifer for water quality, quantity, and storage parameters. Identify sources of recharge and groundwater gradient. Is there evidence that there is leakage or connectivity between aquifers? Are there faults in the area that act as seals against water movement or conduits for water movement? What is the water quality like and what uses is it suitable for? Have trace metals appeared in water samples? How productive and suitable is the designated replacement aquifer? Characterization of the alluvium in all of the creeks is important for AVF determinations.

(1.9) Groundwater Quality: There is no discussion of trace metals.

Drinking water standards are not the best standard to use since most if not all of the water is not used for drinking water. Use DEQ-7 and livestock guidelines instead. Also, a comparison is stated to be done in Tables B-2 and B-3 but no comparison is presented.

There are no mandatory EPA levels for iron, aluminum, and manganese. These are non-mandatory secondary drinking water regulations.

(1) Surface Water Hydrology: More detailed discussion on springs and ponds in the area is needed: the source of their water, how much of the year they have water, and if they will be affected by mining.

(2.1) Surface Water Quantity: The discussion on surface water modeling presented in B-7 should include the model inputs and model networking. This data can be shown in an addendum. ARM 17.24.304(1)(f)(ii)(B) has not been addressed. What are the minimum, maximum, and average discharge conditions? There is the Omang table, but this only addresses flood-frequency and not the typical yearly response.

(2.2) Surface Water Quality: "The effect of sediment load derived from the mining permit area would possibly be negligible relative to the load in any of the streams." This statement is not necessarily correct and should be revised or removed. High flows can occur when the ground is frozen which would result in low sediment. Since it is unknown what the stream sediment load versus the released pond sediment load would be, the relationship between the two cannot be known.

"The effect of this diminution of surface water reaching Trail Creek and McClure Creek will be slight..." Address the effects on the other streams and users downstream. Effects include impacts to the beneficial uses of the stream, including aquatic life as applicable. Address the following issues in the analysis: impacts of MPDES discharges on downstream users / uses; impacts of the impoundment of tributaries in Area F to downstream users / uses due to reduced water volume, timing of flow, and duration of flow; impacts from reduced sediment input from tributaries in area F to the main channels (i.e. potential for "hungry streams"); impacts to downstream water availability due to impacts to springs.

Table B-1: 304 (1)(f) (i)(C) Wells and Springs – requires a listing of all known or readily discoverable wells and springs within one mile and three miles down gradient of the permit boundary.

Appendix B, Table B-1 shows springs in the permit and surrounding area that are associated with water rights – this table appears to be incomplete. 1:24k NHD layer identifies several springs not associated with water rights within the 1-mile buffer. Likewise, Table B-4 only includes private wells for which there are water rights. Several other wells exist in the area (per GWIC query) for which water rights do not exist. Well and spring inventory must include all wells and springs readily discoverable, not only those with associated water rights.

Please amend Tables B-1 and B-4 to include all wells and springs identified through DNRC, GWIC, NHD and other appropriate sources. Include maps of all spring and well locations.

Table B-2: The DEQ-7 standards (which are at least as strict as the primary drinking water standards and in some cases more strict) should be used in conjunction with the secondary drinking water standards. All groundwater, regardless of use, must meet DEQ-7.

Table B-5: Add coordinates, ground elevation, and MP elevation. Use the format given in the AHR guidelines

Table B-11: The table is incorrectly labeled as ‘premine.’ It also states that increased sediment loads will occur, but also acknowledges that sediment ponds on ephemeral drainages will interrupt surface flows from reaching mainstem drainage ways – thereby reducing sediment loads; correct? Sediment load should be modeled, and utilize the hydro control plan to evaluate sediment loading under different conditions. Please amend discussion and analysis of sediment loading using appropriate assessment and analysis as well as correctly label the table.

Table B-13: Units are missing. These numbers do not make sense -- there is single digit values intermixed with SC in the thousands. If this is in uS/cm, the single digit numbers cannot be correct.

Explain how for some data there is no water depth but there is water quality data.

Why is pH sometimes reported to the tenths place and other times to the hundreds place?

What does ‘FULL’ mean with regards to spring levels?

There are no laboratory data sheets for surface water samples. Presumably, no laboratory samples were collected or run. Full surface water suites are needed for baseline analysis, hence completeness of baseline surface water quality is deficient.

The names of the springs and ponds that were monitored do not fit with the convention used by Western Energy for the rest of the Rosebud mine. Are there

alternative names for these springs that are used by Western Energy that conform to the standard name convention? If not, monitoring and analyzing spring and pond data will be cumbersome at best and impossible at the worst because the data will need to be stored in Western Energy's database.

Hydrology Addendum B: Provide the dates (month, day, and year) each of the water levels were collected. Are the measurement depths from measuring point or depth from ground level? Label the tables to note what data each table contains. Use the same format for all tables with the same type of data (e.g. water levels)

Check all figure numbering. There are multiple figures with the same number and figures out of sequence.

Appendix C – Climatology: Show all data, not just the averages. Provide the data from Appendix C in a digital format (spreadsheet).

Appendix E - Area F 2006 Baseline Vegetation Survey:

17.24.304 (1)(i): The introduction of the Baseline Vegetation Survey includes references to ARM 17.24.733. ARM 17.24.733 has been repealed since 2004. Please remove any references to ARM 17.24.733 as this rule no longer exists.

Page 1 -- File page 4/176

In the fourth line of the first paragraph, ARM 17.24.733 is referenced though this Rule has been repealed since 2004. Please remove this rule reference from this location and from Page 4 (7/176) where it is again cited.

17.24.304 (1)(i)(i): Map 1 is said to include a reference area for Woody Draw community types according to the results section of the Baseline Vegetation Survey. This reference area is not included on the map. Please update Map 1 to include this reference area if it has been established as stated.

17.24.304 (1)(i): Table 16 of Appendix B of the Baseline Vegetation Survey has a Total per Acre value listed as "#####." This value is not clear; please amend this table to provide clarity.

17.24.304 (1)(i): Table 24 of Appendix B of the Baseline Vegetation Survey has a Variance value listed as "#####" and an Annual Grasses value listed as "####." These values are not clear; please amend this table to provide clarity.

Appendix G: Soils Resource Report Area F

1. Page 3, paragraph 1, in the last sentence says

"The soils study area encompassed a large enough area so that any subsequent, smaller "Area F" Permit Area would be entirely covered by the detailed Order 1-2 soil survey."

This is unclear. Is the statement referring to covering a larger survey area for future amendments or is it attempting to accommodate a variety of options for Area F planning? Clarify the statement.

2. Page 3, paragraph 2, contains a typo in the last sentence. The sentence says,

"Information from both of these previous surveys, as well as information from the previous Western Energy "Area C and "Area C West" baseline soil surveys, was obtained and reviewed prior to the start of the current soils field work."

The (s) in currents does not appear to be the intended use of the word. Consider revising.

3. Page 4, paragraph 1 discusses Black Hawk and Donley Creeks. The discussion states:

"Both Black Hawk and Donley Creeks are ephemeral streams and do not meet qualifications for an alluvial valley floor."

Please remove the statement, as DEQ will make this determination based on information provided in the application (see previous comment regarding AVF determinations.) Additionally, add reference to ARM 17.24.325 for determination of the alluvial valley floor decision.

4. 3.4 Soil Map Unit Descriptions

Contains this statement at the end of paragraph 2:

"Havre loam (Map Unit 311) can have a "loamy-skeletal" (>35% coarse fragments between 10 and 40 inches in depth) component in the "Area F" soils study area."

The paragraph is discussing map units. While the statement references a map unit, it does not fit the context of the paragraph. Revise accordingly.

5. A soils map is indicated to be attached to Appendix G soils resource; however, it was included in the application and does not exist in Appendix G.

Update the reference to the soils map in the soil resource report, appendix G, to lead the reader to the proper location in the application.

Appendix I – Groundwater Model: There are numerous minor typos in the report. These can easily be fixed with a thorough review before the next submission.

Pg 10, there is a reference to page 2 of Figure 11, but there is no page 2 to this figure.

Pg 12, interburden hydrographs are referenced on Figure 5, page 1. This should be Figure 5, page 2.

Pg 13, McKay coal hydrographs are referenced on Figure 8, page 5. This should be Figure 8, page 4

There are numerous references to Westmoreland. It may be more appropriate to say Western Energy or Rosebud Mine to differentiate this model from other Westmoreland owned properties.

November 29, 2012

Page 23

Pg 20, "... those quantified in the EIS". The area F EIS has yet to be completed. Is this a reference to an older EIS done for other permit areas? Be more explicit on the source of the values used in the model.

Pg 26, there is a reference to well BMC714. This is not a Rosebud well.

Appendix J: In section 6.2, Western Alkalinity Drainage Control, it is stated that Western Energy "may soon be required to meet the requirements of the Western Alkalinity..." and that the document is under development. Western Alkaline has been approved and is not under development. This statement needs to be revised.

Appendix K: Overburden Baseline Assessment:

1.0 Introduction: The second sentence of the third paragraph says, "*Therefore backfill sampling, as discussed in Section 17.24.313(1)(g)(i), will not be required unless areas of suspect overburden or coal evident at the surface are found.*"

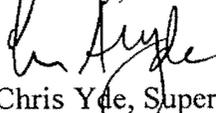
ARM 17.24.313 (1)(g)(i) then references 723 which contains the soil and spoil testing plans.

Please address the list below:

- 1) Reference rule 723 with the soil and spoil testing plan directly.
- 2) The statement that testing will only be required when suspect overburden is found or coal is on the surface, needs clarification.
 - a) Without testing when will the overburden be found suspect? Demonstrate the need to not sample or revise this statement.
 - b) How much coal at the surface will trigger testing? Indicate when coaly surface spoils will be tested.

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

Sincerely,



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