



Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

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May 13, 2010

Mr. John Skriner
Project Coordinator
Maple Carpenter Creek
2925 1st Ave. N.
Billings, MT 59101

RE: Test Pit Application; First Round of Technical Deficiencies

Dear John:

The Department has completed its technical review of Maple Carpenter Creek's Test Pit application. The application was well put together and easy to follow. Your efforts to provide a good document are appreciated.

Numerous technical deficiencies were identified during our review and must be adequately addressed before the Department can determine the application acceptable.

Please provide a response to the following deficiencies:

General:

Pages 3,4,5,6, and 7: The rule citations on these pages need to be corrected.

17.24.303(1)(c) – Surface Ownership: Map 1 does not show a ½ mile buffer around the proposed permit, thus it does not show all the landowners required by this rule.

17.24.303(1)(c) – Surface Ownership: Table 1. *Surface Owner Names and Addresses;* Table lists the owner of T9N R31 E S 32 & 33 as Terry Jorgenson. The Montana Cadastral website lists the legal owner as the *J Bar M Corporation* with the same mailing address. Please indicate which is correct.

17.24.303(1)(d) – Mineral Ownership: Mineral ownership names and addresses for lands affected and land contiguous to lands affected. This section lists only Musselshell County and no contiguous lands. An additional table or an expanded Table 1 including mineral ownership of the entire project area and contiguous lands is needed. Maple Carpenter Creek needs to indicate which lands they have coal leases and the right to mine [ARM 17.24.303(1)].

17.24.303(1)(d) – Mineral Ownership: It appears that the proposed haul road may intercept the Carpenter Creek coal seam on the BLM mineral ownership area. Does Carpenter Creek have the

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lease for the federal coal; what is the contingency plan should this coal seam be intercepted during road construction.

17.24.303(1)(j) – List of all Interests Held or Made by the Applicant: Maple Carpenter Creek must supply a complete list of all interests as required by this rule.

17.24.303(1)(n) – Legal Right to Mine: Response needed concerning what, if any, pending litigation exists concerning their right to enter and begin mining operations.

17.24.303(1)(r) – Anticipated start and End Dates: The following must be provided - a statement of the anticipated or actual starting and termination date of mining and the anticipated number of acres of land to be affected for each phase of mining and the total life of the permit.” No dates have been provided. An attempt should be made to provide anticipated starting dates and anticipated durations for the operational elements listed.

17.24.304(1)(a) – Sequence and Timing of Mine Plan: The reference to Map 1 does not show timing, sequence, or size of anticipated life of the test pit.

17.24.303(1)(t)(iv) – Other Permits: The provided table of “permits required” states “no air quality permit should be required.” Page 93 says “it has previously been determined that an air quality permit is not required” Maple Carpenter Creek must supply the determination (dates) and update this table accordingly.

Air Quality:

The narrative on page 93 states that an air permit is not required. Please provide documentation from the Air Resources Management Bureau, in a format suitable for inclusion in the permit, which states that an air quality permit or air quality monitoring is not required.

Maps:

17.24.305(1)(a) – Surface Ownership: The map is too small to show the landownership within the required ½ mile buffer.

17.24.305(d) – Map of Other Mining Areas, pg 86: The ARM text requires- “...boundaries of subareas for which it is anticipated that additional permits will be sought, and any cropline of the mineral to be mined.” The application says - “There are no sub-areas.” However, clearly, the intention is to seek additional permits to mine the highwall (pg 90). These anticipated future mine areas must be designated on one of the maps and referenced here.

17.24.305(1)(j) - Facilities: There is no fueling site located on the facility map. The rule requires all facilities and disturbances to be mapped.

17.24.305(1)(k) – Mining and Reclamation Sequence: There is no timing of reclamation displayed on Map No. 3.

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17.24.305(1)(q) – Coal Processing Waste Disposal: There is no map associated with the placement and disposal of the coal processing waste.

17.24.305(1)(s) – Explosives Storage: Map 8 does not include an explosive storage site.

17.24.305(2) – Map Preparation: All maps have a notarized statement. However the rules require many of these maps to have a P.E. stamp certifying the design and compliance with all applicable laws. All maps must be prepared in accordance with this rule.

Map General: Map No. 3 does not display the cross sections of the spoil area (L thru W). These cross sections are located on Map No. 8; they should be moved to Map 3 (maybe sheet 2 of 2) so the locations and cross sections are in the same location.

Engineering:

17.24.308 – Operations plan: The tons of coal that could be mined as reported on page 91 (420,809 tons) exceeds that reported in the public notice (up to 300,000 tons). The tons can not exceed the amount in the public notice. If Maple Carpenter Creek desires to mine the increase amount the public notice will have to be revised and re-advertised. Note: The 420,809 tons is also quoted in 17.24.311(2), pg 98 – please correct.

17.24.308 – Operations Plan: As mining progresses, it appears that spoil could be place in the mined out area, reducing the size of the out-of-pit stockpile, as well as transportation costs. Please address this issue.

17.24.308(1)(a) – Operations Plan, pg 89: The narrative states, “ditches will be topsoiled after the roads are built and revegetated.” Please delete this line, as ditches should not be top-soiled until reclaimed.

17.24.308(1)(b) – Construction and removal of facilities: These sub-sections should reference the appropriate section and or map if discussed in detail elsewhere. The application needs to include a description on how facilities will be removed after mining (i.e. ponds and scale)

17.24.308 (1)(b)(i) – Dams, Embankments and Other Impoundments: “Sediment traps will be built as discussed in **Attachment 5**, and are designed to retain water from the 10-year, 24-hour storm event and one times the average annual sediment yield.” ARM 17.24.639 (1)(c) requires a storage volume equal to the 10-year, 24-hour runoff plus **three years** of accumulated sediment or a sediment storage volume of not less than 0.02 acre-foot per area of disturbed area. See Attachment 5 comment.

17.24.308 (1)(b)(ii) – Overburden and Topsoil Handling: Proposed seeding and mulching time frames need to be provided. This section requires more detail or reference.

17.24.308(1)(b)(iii), p. 93, first paragraph: Please indicate that waste material will be placed above groundwater level in the pit if there is water present at time of disposal.

Please indicate how used oil (including used oil filters), anti-freeze, and any hazardous materials will be stored and removed from the mine site.

17.24.308(1)(b)(iv), p.94, second paragraph: Not all types of non-coal waste can be deposited in the pit (e.g. petroleum contaminated waste). Please consult with the department regarding materials approved for disposal in the pit and indicate in the application the disposition of different types of waste expected to be generated in association with the test pit. Given the limited size of the excavation, transport of all waste to a landfill off-site may be the best option.

17.24.308(1)(b)(v) – Explosives Storage: More explanation is needed here or if there is more detail elsewhere, provide the reference.

17.24.308(1)(b)(vi) – Monitoring Access Routes, page 95: Need description of any secondary road improvements and subsequent reclamation or reference to appropriate section.

17.24.308(1)(b)(vii) – Environmental monitoring sites: What are the monitoring facilities, how will they be used, maintained and removed?

17.24.308(1)(e) – Compliance with other acts: The application does not address the Resource Conservation and Recovery Act and the steps Maple Carpenter Creek will take to comply with this act. Also, the explanation and steps to comply with the clean water and clean air act are oversimplified and needs to be expanded to include more details.

17.24.310(1)(a) – Blasting Plan, pg 96: This section should begin with this sentence “A detailed description of Carpenter Creek’s blasting procedures is stated in Sections 17.24.621 through 626.” The narrative needs to include the amounts (representative) that Maple Carpenter Creek intends to use.

17.24.310(1)(b)(iv) – Blasting Plan: Must comply with Montana law and rules not OSM.

17.24.310(1)(b)(iv) – Sequence and Timing of Firing Holes, pg 97: Delete the sentence beginning with “Blasting will be conducted via...” The sequence and timing will likely be established by a combination of surface and down-hole delays.

17.24.310(1)(c) – Blasting Plan: Measures for blast warning and site access control equipment and procedures are described in permit section 17.24.624. Make the language here consistent with permit section 17.24.624 or delete it and just reference that section.

17.24.311(2)(b) – Fugitive Dust Control, pg 98: Please provide a clear reference to 17.24.761(1) where the plan is specified.

17.24.313(1)(b) – Reclamation Time Table, pg 101: The rules require a more detailed time table for reclamation; Table 20 lacks sufficient detail. A more comprehensive time table must be provided and referenced. The proposed schedule might also address other time table requirements such as those in 17.24.303(1)(r). Additionally, the reference to a main permit must be eliminated as it is currently not under consideration.

17.24.313(1)(d)(iii) – Bond Calculation, Table 21, pg 103: Unit price for seeding is not clear; please clarify.

17.24.313(1)(d)(v) – Reclamation Plan, backfilling and grading: Table 22 coal volume removed is not consistent with the public notice, etc.

17.24.313(1)(d)(v) – Reclamation Plan, backfilling and grading: Please verify that the Mass Material Balance calculated in Table 22 is correct; it appears that the excess material may be miscalculated.

17.24.313(1)(f)(ii) – Channel designs, pg 106: Channel designs are not provided. A selection of representative pre-mine and post-mine channel cross sections is needed. An invert profile for the major drainage disturbed is also needed. These can be added to either a new or existing plan sheet with a reference to that sheet here.

17.24.313(1)(j) – Reclamation of Facilities: The reclamation of the facilities needs to reflect the removal procedures defined in 308(1)(b).

17.24.315 – Ponds and Embankments: Attachment 5 does not include a statement addressing 315(1)(b)(iv) and (v). Several other statements regarding maintenance and operation are also unclear.

17.24.321(1)(a) – Transportation Plan, pg 126: The rule requires; “a map, cross-sections, and specifications for each road including width, gradient, surface, cut, embankment, culvert, bridge, drainage ditch, and drainage structure.” Transportation Plan (Map 11) should show several typical haul road cross-sections including one each for areas of fill and areas with a cut. Cross section should show depth and type of surfacing and a typical drainage ditch cross-section. Additionally, Map 11 should designate any secondary “two tracks” which may be needed for incidental purposes such as access to monitoring sites or access to the sediment ponds above the pit.

7.24.321(1)(d) – Culvert Sizes, pg 126: “Culvert sizes, inlet protection and locations are shown on **Figure 1-1 of Attachment 5.**” Please change to “Culvert sizes, inlet projection and locations are shown in Attachment 5 and the Surface Water Control Plan, Map 8.

17.24.321(1)(g) – Transportation Facilities: The application must include a description of how all roads that are not retained for the post-mine land use will be reclaimed. Currently the application only addresses roads in the “mine excavations” under 17.24.313.

17.24.322(3) – Coal Conservation Plan: This determination is made by the Department not the applicant. Please remove this statement.

17.24.501 – Backfilling and Grading Requirements: Review of the proposed Post-mining Topography (PMT) revealed many problems that must be addressed. The proposed swell factor of 25% appears to be over-estimated. The active coal mines in Montana use a factor of 12-16%, which is still occasionally too much. The swell factor must be appropriately calculated, which will reduce the amount of fill available for backfilling the pit; thus, reducing the proposed

increase in the overall elevation of the PMT. The swell factor should also be positively affected (reduced) by the use of a truck/shovel operation which should increase compaction.

It appears that use of a proper swell factor, combined with the use of a truck/shovel operation should allow for a PMT that very closely approximates the pre-mine topography. This would ensure that all drainages are replaced (currently, only 4 of 5 tributaries in the pit area would be reclaimed).

When developing the PMT plan please ensure that the drainage reconstruction requirements of ARM 17.24.634 are addressed.

Please provide a Material Balance for the revised PMT. The mass balance has to include the amount of spoil material that is proposed to be used on the roads (the Department questions the use of sandstone, which will readily break down as a suitable surface material on roads).

17.24.505(2) – Disposal of coal processing waste: Maple Carpenter Creek must provide a detailed plan for the disposal of the coal processing waste. This plan must demonstrate where and how the material will be placed in the pit. The plan must address 17.23.501(2), 17.24.505(2), and 17.24.305(1)(q), and include the protections provided by 17.24.643.

17.24.507(1) – Storage and Disposal of Waste: If the applicant intends to utilize an on site garbage disposal site the location must be “designated” as described in 507. This should include a reference to this map under 507.

17.24.523 – Coal Fires and Coal Conservation: The fire control plan is vague and has no commitment to using only trained personnel.

17.24.601(5) – Road Construction: This rule requires all cut and fill slopes to be stabilized as opposed to “reclaimed” as currently stated.

17.24.601(4) – Erosion Control: The narrative states, “Temporary erosion control measures will be used as appropriate.” A more expansive description of the measures to used and when is needed or referenced to another section must be included.

17.24.601(9) – Dust: The narrative states, “Appropriate methods will be employed by Maple Carpenter Creek to prevent loss of haul road or access road surface material in the form of dust.” Please provide a reference to 17.24.761(1) which provides the specifics of the plan.

17.24.601(10) – Road Reclamation: The proposed language suggests that no grading work will occur on the roads. The rule requires the roads to be reclaimed and this may include removing fills and backfilling cuts.

17.24.635(3) – Diversion to Adjacent Drainage: The narrative states, “The primary diversions will divert flow from the headwaters of the ephemeral drainage around the Test Pit and convey it, with additional contributions from small coulees, to the natural drainageway below the Test Pit. Ditch capacity is designed to convey the 10-year 24-hour runoff event. Location of diversion ditches is shown on the Surface Water Control Plan map (**Attachment 5**).” See comment below

considering making the Map 8 the Mine Plan and Surface Water Control Plan. Also, due to an overlap this ditch line does not show up on Map 8 and should be corrected.

17.24.635(5) – Certification of Design: The narrative states, “Design and Construction of diversions will be certified by a licensed engineer.” The individual plan sheets specific to ditches must be PE certified. This includes Appendix 5, Exhibit 1 -Conveyance Details.

17.24.639(1)(a) – Sediment Ponds and Traps: Correct reference to Attachment 5 and Map 8.

17.24.639(1)(c) – Pond design: The narrative states, “The design of the ponds provides for:

- Storage of an accumulated average annual sediment volume; and
- Containment of the 10-year, 24-hour runoff volume.”

ARM 17.24.639(1)(c) states: Sedimentation ponds must: “provide an adequate sediment storage volume equal to: (i)(A) the accumulated sediment storage from the drainage area to the pond for a minimum of three years as determined by a method approved by the department ; or (i)(B) not less than 0.02 acre-foot for each acre of disturbed area...

The proposed permit text must be corrected and Appendix 5 revised with updated pond volume calculations and designs.

17.24.642 – Permanent Impoundments and Flood Control Impoundments: Currently Maple Carpenter Creek proposes to use the out-of-pit spoil stockpile to impound upslope runoff. This approach is unacceptable as impounding water along the base of the stockpile may make it unstable – thus a safety hazard. Maple Carpenter Creek must incorporate an upslope pond in this area. The design for the pond must be included in the appropriate section of the permit application.

17.24.763 – Coal Conservation: The narrative indicates that Carpenter Creek will use all practical measures to conserve coal and will adhere to its Coal Conservation Plan as required by ARM 17.24.322. Suggest revising text to “...Coal Conservation Plan as included in Section 17.24.322.”

Attachment 5 - Sediment Control Plan

Surface Water Control Plan Map: There are currently two sheets describing the surface water control, Figure 1-1 and Map 8. It is recommended that the information on Figure 1-1 be added to Map 8. Map 8 should be re-titled “Mine Plan and Surface Water Control Plan” and Figure 1-1 removed. Consider removing some of the redundant information on Map 8 that is included on other sheets; such as the BLM land designations and coal outcrop lines. The pond capacities are not needed on any of the plan sheets but the identification labels are. The pond specifics can easily be found on Table 7-1. Provide only the culvert ID label. Please designate the major drainage courses with thin lines as they are not obvious looking at the contours.

Section 5.1 Ditch Design: This section needs more site specific design detail. Individual reaches of ditch need to be identified on Map 8, given an ID label and a ditch table created in Attachment 5. The table should provide design information including the drainage area, design discharge,

slope, velocity, and ditch type. If erosion protection or special structures such as pipe drops or energy dissipation basins are needed they should be specified. The plan should be sufficient to visually determine if the drainage control plan is being implemented per design.

Section 5.2 Culverts: Specific individual design details are needed. Information should include culvert material, diameter, length, inlet and outlet invert elevations (or slope), and top of road elevation (or minimum cover). The hydraulic analysis method/program used should be described and input/output files included if applicable. Given the weight of trucks using this haul road a minimum cover depth should be specified.

Section 6.0 Sediment Yield: ARM 17.24.639(1) specifies an assumed three year sediment yield of “not less than 0.02 acre-foot for each acre of disturbed area, excluding well-established reclamation, within the upstream drainage area, unless the operator affirmatively demonstrates that the sediment volume from any site-specific area would be less.” The proposed estimate of 0.004 acre-foot/ year is based on several uncertain assumptions and so the standard of “affirmatively demonstrates” must be considered not met.

Section 7.1 Sediment Traps: Current sediment trap and pond designs are sized for storing the 10-year, 24-hour runoff and *one* year of sediment accumulation. Ponds and trap designs must be sized for *three* years of sediment accumulation and the text modified accordingly. The applicable rule is: ARM 17.24.639 (28)(a) which requires “Excavations which are sediment control structures” to conform to ARM 17.24.639 (1)(c) which requires sediment ponds to: “Provide an adequate sediment storage volume equal to:
(i)(A) the accumulated sediment volume from the drainage to the pond for a minimum of three years as determined by a method approved by the department; or
(B) not less than 0.02 acre-foot for each acre of disturbed area, excluding well-established reclamation, within the upstream drainage area, unless the operator affirmatively demonstrates that the sediment volume from any site-specific area would be less.”

Section 8.2 Watershed 3: This section refers to sediment pond SP-15 which will have an embankment. Add the following sentence: “After construction of SP-15, an engineer certified as-built drawing will submitted to the department.” This is a requirement of ARM 17.24.639(22)(a).

Section 8.7 Watersheds 9 &10: The infiltration gallery will function to large extent as a pond and must be designed as a pond with embankment.

Per ARM 17.24.639 (28)(b) all sediment pond or trap design plan sheets must be certified (PE stamped) by a qualified licensed professional engineer.

Verify that all trap design sheets have legible contour elevations for both the proposed and existing ground contours.

Vegetation:

17.24.304(1)(l) – baseline:

(A) Maple Carpenter Creek must identify all uses the land is capable of supporting in addition to the historic land use.

(B) Maple Carpenter Creek must provide production amounts for the permit area.

Per MCA 82-4-222(l) MCC must give the approximate number of each variety of trees occurring per acre on the area to be affected.

17.24.308(1)(f) – Operations Plan, Noxious Weed Control: The noxious weed control plan should include measures that will be taken to prevent the establishment of noxious weeds. Since noxious weeds are present within the study area (identified on page 57 of the permit) there is a nearby seed source and invasion of recently disturbed areas is likely. The permit should also include a monitoring program to identify new areas of noxious weed infestation in reclaimed areas.

17.24.313(1)(g)(iii): This section refers to soil stockpiles TS-1 through TS-11, and SS-1 through SS-2. These sites need to be numbered on Map 8, as do the sediment ponds and tree storage areas.

17.24.313(1)(h)(i) – Reclamation Plan, revegetation types: The revegetation types section states: *“The relatively small size of the area to be disturbed (approximately 157 acres) precludes the need to seed or plant trees, shrubs or forbs. Carpenter Creek will rely on natural reinvasion by trees, shrubs and forbs onto revegetated areas.”* Carpenter Creek cannot rely on natural reinvasion in areas which are as large as the test pit, large soil stockpiles, overburden stockpiles and the equipment area. In these areas, a native seed source for reinvasion may be 400 or more feet from a reclaimed area. It is generally recognized in the scientific community that sagebrush reinvasion travels only a few feet per year into a reclaimed area. Also, the native upland grassland seed mixture would establish dense stands of grass which may greatly reduce the ability of trees and shrubs to establish. Carpenter Creek must develop planting plans for ponderosa pine and shrub vegetation types in the test pit, overburden storage, large soil stockpiles, and equipment areas. This plan must include either seeding or planting trees and shrubs and must base the amount of each type on the number of acres of each vegetation type that is disturbed. The road and associated small stockpiles disturb a relatively small, linear area and so should be more conducive to natural reinvasion by woody species.

17.24.313(1)(h)(ii) – Revegetation Schedule, pg 101: More detail is required here or a reference made to a more detailed schedule sheet.

17.24.313(1)(h)(iii) – Reclamation Plan, seed mixes: Tables 27, 28 and 29 state: *“Species or rates may be revised based on commercial availability or site-specific conditions.”* Maple Carpenter Creek must provide a list of alternate species that may be substituted for each seed mix so that they may be reviewed by the Department prior to use. Additionally, the Department stresses that Maple Carpenter Creek must use a minimum seeding rate that corresponds to the approved rate (i.e. the seeding rate can not be adjusted downward do to seed availability, the operator must search out an adequate supply of the necessary seed mixes).

17.24.313(1)(h)(vii) – Cover Crops and Mulch, pg 115: “Straw mulch will be *considered* for application on 20 to 40 percent slopes with less than 40 percent surface cover of respread rock.” emphasis added. The areas designated for straw mulch should be designated or the conditions dictating use of these treatments should be specified.

17.24.324(1) – Prime Farmlands: The reference to OSM is not required and should be removed as Montana has jurisdiction over the Prime Farmlands Determination. Please provide a copy of the map that NRCS used to delineate farmland soils of state interest.

17.24.716(2) – Method of Revegetation: Please include a reference to the Reclamation Plan in Section 17.24.313.

17.24.726(3) – Period of Responsibility: The period of performance section states: “*Vegetation will meet the performance standards for at least two separate years (growing seasons) prior to phase III bond release.*” According to ARM 17.24.726(4), the performance standards must be met two of the last four years before phase III bond release. Please adjust the permit narrative accordingly.

17.24.751(2)(e) – Wildlife Habitat Enhancements: Wildlife habitat enhancements must be incorporated into all reclamation (see comment 17.24.312(1)(c) – Fish and Wildlife Plan, enhancement:).

17.24.762 – Post-mine Land Uses: Fish and Wildlife Habitat should be included as a post mine land use as it currently co-exists with the pre-mine land use. This is particularly important in the heavily timbered land where grazing is poor at best.

Vegetation – general: The maps show large tree storage areas, however, the text does not include a description of the final placement of the trees. Does Maple Carpenter Creek intend to utilize them in the reclamation? This may be good for revegetation and wildlife but it may pose an issue with the private landowner. Additional information on the use of the trees should be provided.

Wildlife:

17.24.304(1)(j) – Wildlife baseline information: The Department approved a Plan of Study for collection of four seasons of wildlife baseline data. The information reported in the wildlife baseline section reflects only the results of a 2-day drive through inspection of the area. Without four seasons of wildlife information collected as per the approved Plan of Study this rule is not adequately addressed and the Department can not rule the application acceptable or prepare the necessary environmental assessment. Additionally, as per ARM 17.24.302, the surveys/data collection must be performed or certified by a qualified person using scientifically valid techniques approved by the Department and must be carried out at appropriate times and under appropriate conditions.

17.24.312(1)(a) – Fish and Wildlife Plan: The majority of this text is not applicable to what the rule requires. Please delete and provide the required information. Please keep in mind that this

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narrative and the proposed actions must be reviewed by Montana Fish, Wildlife and Parks and upon request by the U.S. Fish and Wildlife.

17.24.312(1)(c) – Fish and Wildlife Plan, enhancement: What is written is not what the rule requires. If Maple Carpenter Creek believes that it will not be practicable to provide enhancement of fish and wildlife resources, a complete justification must be presented; this must be to the satisfaction of the Department. Implementation of the changes to the reclamation plan – addressed below – should provide for the required enhancement.

Soils:

17.24.304(1)(k)(ii)(A) - Acreages, Estimated Salvage Depths and Estimated Soil Volumes : Table 18 referenced under this rule and listed on page 84 of the application has a foot note that must be changed.

“Total acreage does not include topsoil storage areas or tree storage areas, as soil will not be salvaged from these sites.”

The permit application designates topsoil and subsoil as first and second lift soil material respectively; however, generally mine permits use topsoil to speak of both lifts. The complete description of soil salvage is discussed in 17.24.308(1)(b)(ii). Revise the footnote to highlight subsoil footprint salvage and reference 17.24.308(1)(b)(ii). Also, update subsoil salvage volumes to be consistent with this commitment.

Attachment 5 Soils and Vegetation: Paragraph 1; sentence 2 states:

“During mining, the existing soils will be distributed over the site and placed in soil storage piles or used to build roads. In excavating...”

This statement is incorrect in representing soil handling methods. Soils may not be used to build roads and will be placed in stockpiles until redistributed with minimal mixing for reclamation. This section aims to establish the change in soil physical characteristics for use in the RUSLE soil loss equation. The language requires revision to more accurately represent soil salvage, storage and reapplication.

17.24.308(1)(b)(ii) - Overburden and Topsoil Handling and Storage Areas and Structures: Paragraph 1, sentence 3 regarding overburden storage should be changed to read similar to the following: Topsoil and subsoil will be salvaged and stockpiled separately and designated with signs prior to the placement of spoil [note: overburden is native, in place material; spoil is overburden once it has been removed from its native location].

Additionally a statement must be added to address soil salvage from the coal storage and facilities areas. A statement similar to the following: Topsoil and subsoil will be salvaged, stockpiled separately, and designated with signs prior to construction of any facility, haul route, coal storage, excavation area, or...

Paragraph 2, sentence 2 addressing soil stockpiles states:

"The piles will be graded and the side slopes will be tracked with a dozer to create small impressions to hold moisture and to prevent rills on the slopes."

The statement must clarify that the marks created by the dozer grousers are to be parallel to the contour of the intended stockpile.

Paragraph 3 should reference long-term soil stockpile seeding and mulching practices as set forth in 17.24.702(2) Stockpiling and 17.24.702(3) Inactive Stockpiles.

17.24.308(1)(b)(iii) - Mineral Removal, Handling, Storage, Cleaning, and Transportation Areas and Structures: Paragraph 3 in the final sentence says there will be raw and clean coal stockpiles designated on Map 8. Map 8 only depicts a large area with the coal cleaning facility with a coal in and coal out end. Coal stockpiles require designation.

17.24.313(1)(g)(ii – iii): Soil salvage and handling sections of section 313 lay out a plan based on the soil survey that is detailed and accurate in regards to setting a foundation for successful reclamation. However, mine operations generally salvage in strips and the change of soil depth by soil type is not followed. The plan requires change in order to be carried out most efficiently and reduce the technical intricacies for equipment shuffling, field survey, and tracking. The following points should be considered:

1. Soil depths: Mapping units and soil depths designated in tables 18, 25 and the soil survey are thorough. However, during mine operations it is difficult to have multiple soil polygons salvaged at different depths without personnel on the ground directly adjusting the equipment operators through field staking or other means.

There is not one set method for designating the soil salvage depth. One way could be to designate salvage based on disturbance type (e.g. test pit area, facilities...). Another is to designate the depth average which best approximates all soil types for lift one over the entire permit area. This may include "A" and "B" soil horizons, but should generally target the most useful material of the top 18 inches. Lift two materials should be set to a depth that will pick up any horizons left after lift one salvage and possibly include parent material to meet the soil materials balance to meet redistribution depths.

Additionally organize a training with a soil scientist to spend a day or half day with the soil salvage crew. During the training they can be instructed on what a soil is and how it should be salvaged for reclamation. This will help them identify what to look for in a good salvage operation and familiarize them with coal mining rules. This should be on the ground training with soil pits and equipment to demonstrate what is expected.

2. Soil salvage for major haul routes and access roads which are designated for frequent activity will be salvaged in two lifts. Two-track monitoring roads could have no salvage and temporary roads or scraper trails may be approvable for single lift salvage on a case-by-case basis.

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Soil Redistribution: The last sentence in paragraph 2 appears to have a typo. It currently reads "TS-4 though TS-11," and would seem it should be "TS-4 through TS-11."

17.24.313(1)(h)(vii) - Cover Crops and Mulch: This section talks about the use of hydroseeding. A caveat should be added in the methods to address shadowing due to large surface objects blocking the stream of seed and mulch from the gun.

17.24.313(1)(h)(viii) - Seedbed, Preparation, Amendments and Management Techniques: Paragraph 1, sentence 1 says, "Soil redistribution will occur following overburden ripping (if needed)..." Overburden material post-mining becomes spoil and will be changed as such for clarity. Additionally, per 17.24.702(4)(b) scarification on the contour will be completed to a minimum 12-inch depth.

17.24.702(6) - Thickness: The soil thickness is a bit out of sync with the reclamation plan. The soil redistribution thickness should mirror and reference the reclamation plan.

Ground Water Hydrology:

17.24.304(1)(f)(i)(A) – Description: Test Pit Application, p. 16, last paragraph, and Probable Hydrologic Consequences, p. 3-9: The generalized statement that "the McCleary coal seam contains very little groundwater" is misleading since monitoring well 6B5M has a water column of 163 feet. Please clarify the statement to indicate that the McCleary seam appears dry in the test pit and/or hydrologic study area.

Attachment 2, p. 3-20 and the Test Pit Application, p.26, both indicate that recharge occurs north and east of the proposed mine plan and test pit areas. Flow direction on the potentiometric map of the underburden (Figure 3-5) is toward the northwest. Therefore, recharge would be expected from the southeast. Please explain the statement regarding recharge direction as stated in the documents.

Attachment 2, Exhibit 1: Cross-section lines were omitted from the map. Please show them on a replacement map.

Please confirm that underburden wells (4U6 and 4U7) installed in the proposed test pit area are still dry as only two water level measurements were reported and it has been more than a year since a water level from them was reported.

In the Baseline Hydrologic Data and PHC, p. 3-5, second paragraph, the statement is made that borings advanced to define potential alluvial valley floors are prefixed by AVF in Figure 3-1. There are no locations on the figure identified with an AVF prefix.

Please include larger figures (e.g. two to four per page) of the Piper diagrams rather than six on a page as shown on Figure 3-8. They are difficult to read at this size.

In the Baseline Hydrologic Data and PHC, pp. 5-6 through 5-8, saturated paste extract analyses of cations Ca, Mg, and Na from stratigraphic units in a (dry) test pit borehole are used to project TDS in baseline as well as post-mine aquifers. The results of paste-extract analyses for these

three cations are not sufficient to estimate current or post-mine water quality. The anionic component of water quality must be included in the estimate. VanVoast and Thompson, 1982, (p.3) suggest a way to include estimates of anions in Powder River Basin aquifers.

VanVoast's "rule of thumb" for estimating post-mine water quality is that "average dissolved-solids concentrations in mine spoils are 50 to 200 percent higher than average concentrations in undisturbed aquifers." (VanVoast, 1988, p.4). In using this method of estimating post-mine water quality, please use water quality analyses (TDS) from a given aquifer (e.g. coal or overburden) rather than paste extract analysis data. Please revise the discussion on existing and estimated water quality to reflect the comments in the above paragraph.

Please give the northing and easting of domestic well and spring locations on Figure 3-9. Estimates are acceptable where survey coordinates are not available.

17.24.609, Other Support Facilities: Please indicate where truck maintenance and equipment washing will take place at the mine site and the protections in place to contain or otherwise manage discharge.

Please indicate if and where diesel fuel and other petroleum products will be stored, the location of fueling sites, and a plan(s) for spill prevention and containment.

Surface Water Hydrology:

17.24.304(1)(e)&(f), 314, 631, 633, 646:

1. The proposed Test Pit Water Resources Monitoring Program (Attachment 2, Appendix H) states that: "...A select list of baseline water resources monitoring sites will be monitored during Test Pit mining to evaluate potential impacts of the Test Pit operations and to maintain a continuous water database for future environmental analysis and permitting." The proposed 'select list' is not clear. Maple Carpenter Creek must include adequate monitoring of water resources within and adjacent to the mine plan area to ensure all potential impacts to adjacent water resources (e.g. springs, wet reaches, stockponds, windmills, private wells) are detected, and any appropriate replacement or other mitigation measures will be implemented as needed or required. A monitoring plan that adequately addresses this rule must be submitted and approved by the Department prior to the application being determined acceptable.

2. Maple Carpenter Creek must continue baseline surface water and precipitation monitoring to adequately describe seasonal and longer-term hydrologic variability within and adjacent to the proposed mine plan area. Data analysis must include comparisons of long-term local, regional precipitation, or other hydrologic data to the limited monitoring data that has been collected. The current data include less than 1 year of precipitation and climatic data, and minimal surface water data (1 year), with few events or samples recorded. These limited observations and data are not adequate to describe seasonal and annual characteristics, high and low flow conditions, or normal and abnormal variations in water chemistry.

Note that continued monitoring of other representative sites (e.g. sites not expected to be impacted) is needed to adequately characterize seasonal and long-term variability of representative baseline hydrologic characteristics of local water resources, and to differentiate potential impacts from seasonal or longer-term departures from normal conditions.

3. Maple Carpenter Creek must establish a continuous recorder streamflow monitoring site below proposed mining disturbance (i.e. a short distance below Test Pit and Overburden stockpile drainage). As discussed during development of the hydrologic plan of study, streamflow monitoring sites were established when only general mining disturbance plans were available, and could need adjustment to address specific mining disturbance plans or other changes (e.g. submittal of a smaller scale test pit application).

The stream gaging site cross sections in Appendix E must include the adjacent terraces or other main slope breaks.

4. Maple Carpenter Creek must include descriptions, mapping and relevant monitoring of stockponds (and other missing water resources, including windmills and springs) for the summary of baseline water resources. A preliminary list of missing surface water resources is included below (Table 1) from a review of maps and airphotos, listed in downstream order from west to east. This inventory may not be comprehensive, or maps and airphotos adequately updated to show all spring, stockpond, windmill, stock tank or other surface water resources. Maple Carpenter Creek should ensure a comprehensive listing of surface water resources by working with local landowners and other knowledgeable sources.

Table 1. Preliminary list of surface water resources not included in MCC's baseline inventory within 3 miles of the proposed Test Pit permit area. Sites determined from review of maps and airphotos with approximate locations given, listed in downstream order from west to east.

Drainage	Type	Section	Easting	Northing	Elevation (ft.)	Notes / poss. seasonal GW (E, I, P)
Carpenter Creek (CC)						
CC mainstem	Pond	NW¼ 7	722480	247490	3235	I/P; below Chandler Spring; ponded July 2005 NAIP photo
CC E trib.	Pond	SW¼ 8	724100	246640	3325	I/P; ponded July 2005 NAIP photo
CC mainstem	Spring	NE¼ 1	721450	249970	3140	valley below wet in July 2005 NAIP IR photo
CC W trib.	Pond	NW¼ 1	720900	250300	3155	E/I
CC W trib.	Pond	SE¼ 34	720930	251080	3125	E/I
CC mainstem	Pond	SW¼ 35	721380	252210	3085	E/I; ponded July 2005 NAIP photo
Angus Bell Coulee	Windmill	NW¼ 5	724540	249910	3240	windmill w/stock tank
CC mainstem	Pond	SE¼ 27	720930	252880	3050	I/P; ponded July 2005 NAIP photo
CC E trib.	Pond	SW¼ 26	720950	253220	3115	I/P; ponded July 2005 NAIP photo
CC mainstem	Pond	NE¼ 27	721350	253060	3045	I/P; ponded July 2005 NAIP photo
East Fork CC	Pond	NW¼ 31	724760	252420	3190	E/I; ponded July 2005 NAIP photo
CC mainstem	Pond	SE¼ 22	720580	253960	3025	E/I; ponded July 2005 NAIP photo
Lost Horse Cr. (LHC)						
LHC S trib.	Pond	NW¼ 1	730810	250950	3155	E/I
LHC S trib.	Pond	NW¼ 1	730260	250430	3200	E/I
LHC S. trib.	Windmill	SW¼ 33	727550	251230	3210	
LHC S trib.	Pond	NW¼ 33	728120	251950	3125	E/I; ~1500 ft above 33G5 site
LHC mainstem	Pond	SE¼ 20	727280	254380	3010	E/I; also ponded above, E of road
LHC S. trib.	Windmill	NW¼ 3	727310	250550	3208	
LHC W trib.	Pond	NW¼ 20	726140	254930	3010	E/I
Alkali Creek (AC)						
AC mainstem	Pond	SE¼ 16	726320	244840	3220	E/I; ponded July 2005 NAIP photo
AC mainstem	Pond	SE¼ 16	726770	244790	3210	I/P; ponded July 2005 NAIP photo

Mr. John Skriner, Project Coordinator

May 13, 2010

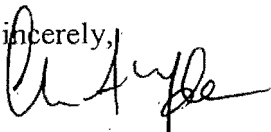
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AC mainstem	Pond	SW¼ 15	727600	244750	3195	E/I
AC mainstem	Pond	SW¼ 15	727700	244720	3190	I/P; ponded July 2005 NAIP photo
AC mainstem	Pond	SW¼ 15	727720	244830	3185	I/P; ponded July 2005 NAIP photo
Cabin Cr. E trib.	Windmill	SW¼ 6	732640	248010	3282	
Cabin Cr. mainstem	Spring	NE¼ 18	732840	245960	3135	I/P; ponded July 2005 NAIP photo
Cabin Cr. W trib.	Pond	NW¼ 18	732630	245750	3150	E/I

E – Ephemeral; I – intermittent; P – perennial. Approximate coordinates: NAD 83 MT State Plane meters

While this is a fairly exhaustive list of deficiencies, many are minor and should take a minimal amount of time and effort to address. There are some that are more significant, and will take some effort to appropriately address. Please feel free to contact the Department with any questions regarding these deficiencies.

Sincerely,



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FC: Prospecting 331 (Maple Carpenter Creek – Test Pit)