



Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

August 10, 2010

Ms. Dicki Gregg
Permit Coordinator
Westmoreland Savage Corporation
P.O. Box 99
Colstrip, MT 59323

RE: Amendment Application 00185; First Round Technical Deficiencies

Dear Dicki:

Department review of Amendment Application 00185, determined to administratively complete on April 12, 2010, is complete. Our review determined that there is a long list of deficiencies which must be adequately addressed prior to the Department being able to determine the application technical acceptable. The deficiencies are listed by rule in the following summary:

General

17.24.501 (3, 4, 5, 7):

In permit section 17.24.501(4)(c) - page 151 (and elsewhere, as appropriate), the words "...of State Lands" referring to the former department needs to be removed and replaced with Department of Environmental Quality as appropriate.

17.24.303(1)(c) and 305(1)(a) – (b): No changes were made to the ownership tables beginning on page 5; however, the ownership map, Exhibit L, changed. The changes to Exhibit L include the usage of "and/or" when referring to coal and surface rights. This is ambiguous and must be changed.

17.24.303(1)(j): This rule is not accurately addressed as it is stating that all lands adjacent to the area are owned or leased (both surface and mineral) by WSC. Please review the rule and provide the required list.

17.24.303(n): The lease agreements in Appendix A are incomplete. A copy of all surface and coal leases must be included.

17.24.303(1)(q): The proposed mine plan is within 300 feet of the dwelling in section 16. WSC must acquire a written waiver from the landowner. Also, the residence located in the SE1/4SW1/4, S21 does not have a waiver with WSC. Again a written waiver must be acquired and submitted to the Department prior to entering the buffer area

17.24.304(1): The operator must provide a map and baseline descriptions of all surface water resources, including streams, ponds, springs, stock wells within one mile upgradient and three miles downgradient of the proposed permit boundary. The operator should include monitoring of potentially impacted surface water resources and of representative non-impact sites to provide undisturbed background monitoring to help verify impact predictions within yearly and seasonal climate variations.

17.24.304(1)(b): There has been no update provided for the cultural resources. It appears that the west half of section 21 still requires a cultural resources survey

17.24.304(1)(j): The application sites Appendix G as the location for the required information. However, Appendix G houses multiple Fish and Wildlife surveys, all of which are greater than 20 years old, but does not address the rule. WSC must review the requirements of 304(1)(j) and provide the specific details required – this can be largely addressed by referencing the Annual Wildlife Monitoring Reports.

Groundwater – general comment

The historic structure and language of the permit regarding groundwater hydrology lacks consistency and comprehensive discussion of the setting, existing and anticipated impacts, as indicated in the comments below. Westmoreland Savage must evaluate the possibility of changing the structure of the permit to make information in it regarding groundwater less scattered and inconsistent.

17.24.304(1)(f): Appendix D, Groundwater Hydrology, P. D-4, Groundwater Quality – The narrative discussing groundwater quality is inadequate and inaccurate. The range and average baseline TDS concentration for Pust coal is given but a range and average TDS concentration for spoil water quality is not given. The statement is made that “water in the spoils is approximately twice as mineralized as the water in the coal.” However, spoil water quality is often more than twice as mineralized as background Pust coal water quality. Please include the range and average concentration of TDS in spoil for an accurate comparison of the two groundwater sources. A table showing the range and average concentration *for all major analytes and trace metals* of background/upgradient water and spoil water would be a more informative comparison.

There is no discussion of arsenic in water quality samples from seven downgradient monitoring wells, two of which (290, 291) have concentrations that exceed water quality standards (75-5-301(2)(b)(i) MCA; 17.30.1006 (2)(b)(i); DEQ Circular 7). The KC Harvey report in Appendix O makes recommendations for further investigation of arsenic but no follow-up plans have been submitted to the Department. Monitoring wells with arsenic concentrations above detection levels must be identified and discussed in the water quality section of the PHC. Plans for an acceptable study to investigate the source, extent and plan for remediation of arsenic in groundwater on the mine site must be submitted to the Department prior to approval of the permit amendment.

17.24.304(1)(e): Exhibit D-1 -There are two locations for Well 100 on Exhibit D-1, Surface and Groundwater Monitoring Sites. One of these monitoring sites is Well 101. Please correct this error.

Well OB-1 is also designated Well 001 and there is data in the database for Well 001. Please place “001” in parentheses next to OB-1 on the map to keep it clear that this well has two designations.

Exhibit D-5, Potentiometric level map, is out of date in the permit. Please update the map to show the current potentiometric/water table surface of the coal and spoil aquifer at the Savage Mine. The change in potentiometric surface since monitoring began should be addressed in the PHC.

Exhibit B-3, Structure Contour Map, Pust Coal, and Exhibit B-6, Overburden Contour map, are both pertinent to understanding the hydrologic system and its function during mining and recovery after mining. Both need to be updated to include the proposed application area.

Exhibit 2.1.4, Test hole and cross-section locations. Please update this map and cross-sections to include the proposed area of mining in Application 00185.

17.24.304(1)(i): Appendix F does not fulfill the requirements for vegetation surveys in MCA 82-4-222(2) and ARM 17.24.304(1)(i). For example, WSC has not provided a map delineating vegetation community types. This information must be provided for amendment and current permit areas.

17.24.305: Scanned maps in the old permit: Many of the scanned maps that have been submitted are not up to standard and often partially or totally illegible maps. All maps must be submitted in a format that is legible and easy to understand.

All of the maps in the existing permit are of exceptionally poor quality, mostly illegible, and are no longer acceptable. Please resubmit all maps along with accompanying electronic copies in their native format (e.g. CAD, GIS, etc.).

The naming of Exhibits is confused by the fact that Appendices Exhibits have duplicate Exhibit sequence numbers as other Exhibits elsewhere in the application or permit. In addition, many of the map titles do not match the CAD drawing file names, and many are missing the Exhibit number in the title.

Many maps are consistently missing some critical pieces of information. These deficiencies were noted in the sections below whenever observed, however each map should be reviewed on an individual basis and the following basic information added where it does not already exist:

1. Date of Topography or Aerial Photography backgrounds
2. Contour Interval
3. Township, Range and Section Numbers
4. A complete list in the legend of all features shown on the map (feature that are not relevant to the subject of the map should be removed)
5. Revision number (e.g. Amendment Application 185) and a notation that the map is in draft form (as is the done with the narrative text)
6. Date (in order to distinguish between revised maps associated with the various deficiency responses)

Any maps included in the application (e.g. hydrological maps included in appendices) should be accompanied by identical electronic versions submitted in their native format (i.e. CAD, GIS, etc.).

17.24.305(1)(a)(b): Exhibit L does not show surface ownership information for the ½ mile buffer required by 17.24.305(1)(a): "the owners of record of the surface of the land to be affected by the permit and the owners of record of all surface area within 1/2 mile of any part of the affected area;" nor does Exhibit L show mineral ownership required by 17.24.303(1)(d): " the names and addresses of the present owners of record and purchasers under contract for deed of all subsurface minerals in the land to be affected and land contiguous to the land to be affected".

17.24.305(1)(e): Exhibit A1 – Roads and Power Lines (black dashed line with red dots), appear to be shown on the map, however there is no indication in the legend as to what exactly the line symbols refer to.

17.24.305(1)(j): Exhibit A1 refers to pre-mine topography as "Topography USGS 1968 with 1994 flight". Is this the earliest pre-mine topography available? A portion of the "pre-mine" topography is

actually as-constructed. The map should also show "...any change in a facility or feature to be caused by the proposed operations". There currently exists a set of buildings in the south-central portion of section 21 that will presumably be mined through, according to the mine plan drawings.

17.24.305(1)(m): While Exhibit A1 does show Soil Stockpiles, it does not show any "mineral storage, cleaning, and loading areas" as stated on page 56 of the Amendment Application. However, Exhibit H does appear to show those facilities. Please correct the table on page 56 in the application to show the proper map references of these features.

17.24.305(1)(r): The table on page 57 incorrectly refers to Exhibit "C" rather than Exhibit C1.

17.24.305(1)(s): While Exhibit N does show a label for an Explosives Storage Area in the south half of Section 22, no exact location is visible nor is there any indication in the legend.

17.24.305(1)(w): Exhibit D1 does not adequately show all of the features required by this rule. The map should show post-mine streams (i.e. "... constructed drainways, natural waterways used for drainage, and the streams or tributaries receiving the discharge"), in addition to flow direction and volumes. Please also include the post-mine drainage divides.

17.24.305(2) and (3): The General Affidavit and certification page, page 58a, must be revised and certified again. The professional engineer statement must be made more clear as to what in general is being certified (no changes to the maps except for the "Title Blocks") and which specific parts of the permit apply to the certification ("listed on page 2"). The grammar impairs what in general is being certified. The maps listed on page 2 are specific but the reference in the certification, "listed on page 2", is to general. At a minimum, this should specify "page 2 of the General Affidavit" and any other specifics related to page like date and time would further document what was being certified.

17.24.306: This rule is not properly addressed. After all the required information is provided WSC must "submit a request for negative determination" to the Department's Soil Scientist.

17.24.308 Operations Plan: Coal Preparation and Transport - This section notes two coal processing and load out facilities marked on Exhibit T as items 13 and 15. One is a tipple (15) at the facilities area and the other is portable crusher (13) located near the active pits. The text states that 75 percent or more of all coal will be processed at the portable crusher. From inspections it appears that all coal is processed and loaded out of the portable unit and the facilities tipple is out of service.

The language should be adjusted to reflect actual use of these facilities. Furthermore, the facilities tipple if not used should be removed as it seems to be deteriorating into a hazard. With the facilities tipple removed the area could be reserved as a stockpile location and the portable unit placed here for use if necessary.

17.24.308(1): The second paragraph on page 59 must be revised. It states, Exhibit A1 depicts projected mine plans beginning in 1989 and ending in 2015: 1989 is not a projection and the mine plan extends to 2045 not 2015.

17.24.308(1): The area description is missing section 26.

17.24.308(1): There is a statement that explosives will be used for overburden and coal Removal, does WSC plan to resume blasting?

17.24.308(1): Is the existing tipple in use as described in the text?

17.24.308(1): There are several paragraphs that discuss drainage reclamation, soiling and surveying. This information should be located in 313 not 308.

17.24.308(1)(a): The rule requires annual and total mine production.

17.24.308(1)(b)(iv): Exhibit A-1 does not identify the location of any intermediate ramps into the 21N Pits. If additional ramps are intended they must be identified here.

17.24.308(1)(b)(v): A support facility "clean site" demonstration plan should be developed.

17.24.308(1)(f): Page 64 and 108 – The Noxious Weed Management Plan is not provided. Appendix M referred to in rules 308 and 313 (pages 64 and 108) contains the plan for the Middle Impoundment.

17.24.311: P. 68, first sentence: The statement should read that production is *not* greater than 1,000,000 tons.

17.24.312(1)(a): The rule requires that a plan describe how the following three requirements are applied to fish, wildlife and environmental values:

- 1) How impacts will be minimized
- 2) How enhancement of these resources will be achieved
- 3) How the plan will comply with the Endangered Species Act

The current plan includes general narrative but does not address the three requirements. The plan should focus on things such as not disturbing breeding birds during April through May, or how WSC intends to improve surface water available for wildlife, or how WSC will only strip XXX feet in front of the active Pits in order to allow maximum utilization of habitat before mining, etc. (these are just a couple of potential ideas for minimizing impacts to wildlife).

17.24.312(1)(b): The proposed text does not address the rule. Please note that "wildlife enhancement feature" is defined in 17.24.301. The use of this phrase needs to be corrected through out the application, including section 313.

17.24.312(1)(c): The text corresponds to (d) not (c). Thus the application has not addressed (c).

17.24.312(1)(d): This rule requires a narrative that describes how the applicant will use the following to Protect or Enhance areas identified as high value habitats:

- 1) Utilize impact control measures.
- 2) Management techniques
- 3) Annual monitoring methods

17.24.313: Typical Single Pit Reclamation Timetable: (typo) Page 70; 1-12 months following final regarding: Change to read regrading.

17.24.313 - Reclamation Plan: Topsoil Salvage – A soil survey lays out the ideal salvage depths for each soil type. However, soil salvage is not carried out following the pattern of the soil polygons but rather the pit cut lines. Additionally, keeping track of fluctuating soil depths is not a common practice, and scrapers are generally only accurate to the half foot.

Salvage depths should be set to a depth which captures the best material from each soil lift; falls on a half-foot increment; and, meets the volume required for reclamation. This method will make it easier for the equipment operator to follow and the inspector to evaluate. If a specific soil is needed (e.g. sandy type) then it can be designated for special salvage depths.

Topsoil Redistribution: Paragraph 1 of this section says, "Westmoreland Savage Corporation will, to the extent possible, abide by the stipulations addressed in of ARM 17.24.702(5) in order to preserve the integrity of the topsoil and immediately underlying graded spoil."

The use of the word stipulation has a specific purpose in relation to a permit. Change the word from stipulations to something like provisions and remove "of". This would then read, abide by the provisions addressed in ARM 17.24.702. This will clean up the text and reduce future confusion in relation to stipulations tracking.

- Topsoil redistribution depths should be set at a half-foot increment for ease of application and measurement.
- The variance used by the department for soil depths is +/- 6 inches. Using 3 inches for cropland is ok; however, the department does not find this necessary and 6 inches is adequate.

17.24.313(1): The control area is not shown on exhibit C-1. Also, if a control area is to be utilized for vegetation standards WSC must demonstrate that they have and will continue to maintain all control over the land management.

17.24.313 (1) (b): Appendix Q, Table Q-2 provides an "Estimated Pit Stripping and Reclamation Time Table". A reference should be provided to the exhibit which identifies the individual cuts. If it is intended to be Exhibit B-1, then the individual cuts must be labeled on it.

The reclamation time table is not approvable as written as it does not demonstrate contemporaneous reclamation.

17.24.313(1)(c): A new worse case bond evaluation must be calculated and the calculations included in the deficiency response.

17.24.313(1)(c): In the bond calculation for soil replacement the soil ripping is stated to be 1 foot deep by 1.5 spacing. The 1 foot is the minimal allowed depth, but the spacing cannot be greater than the depth of ripping. This commitment should be moved to the reclamation plan (17.24.313).

17.24.313(1)(d): The text contradicts itself by saying highwall reduction will not exceed 20% and in another sentence it says 25%.

17.24.313 (1) (d) (ii): There are several paragraphs of discussion related to the reclamation of Pits 2, 3 & 4 with reference to pit cross sections A through H and Exhibits V1 through V4. These Exhibits should be updated to reflect the current and proposed PMT. Other alternatives to addressing any outdated V exhibits may be acceptable.

Paragraph 3 is not accurate as exhibit A-1 has no alpha-numeric labels for the mine cuts. The correction will need to be made in the exhibit and the text.

The text in paragraph 3 includes disposal of ash. This practice has been discontinued.

17.24.313(1)(e): The rule requires a description of post-mining drainage basin reclamation that ensures:

- 1) protection of the hydrologic balance
- 2) achievement of the post-mine land uses
- 3) prevention of material damage to the hydrologic balance in adjacent areas, including (i) and (ii).

17.24.313(1)(e)(i): The drainage area does not match the proposed permit area of 1,284 acres.

17.24.313(1)(f)(i): Wetland areas are present within the proposed permit and must be addressed.

17.24.313(1)(g)(ii): Stockpiles may not be seeded with a pasture mix unless they are dedicated to a pastureland. Please revise text.

The use of suitable spoil in replacement of soil is not an acceptable practice for the proposed post mine land use of pastureland.

17.24.313(1)(h)(i) - Reclamation Plan: The entire reclamation plan will be re-evaluated once pre-mine baseline vegetation community narrative and map are provided to the Department. The proposed Reclamation Plan is greatly deficient and must be revised to address and meet the rules.

Page 99: WSC must commit to creating a specific percent or acreage of wildlife enhancement features in each type of postmining land use.

WSC must retain the commitment in the currently approved permit to plant shrubs in the grassed waterways wildlife enhancement feature.

Page 100: The currently approved permit has cropland, rangeland, and tree-shrub post-mine vegetation communities. WSC cannot change the postmining land use to cropland and pastureland without fulfilling the requirements of MCA 82-4-232(8), ARM 17.24.821, and ARM 17.24.823.

Page 102: All seed mixes must include scientific names as well as seeds/square foot of each species. WSC should provide a list of alternative species for each mix and describe how minor changes to seed mixes will be approached.

Cropland Seed Mix section: The statement "Croplands will be planted one year followed by one year of fallow," should be removed and replaced with "Croplands will be fallowed no more than one year between crop plantings."

Page 103: Temporary Seed Mix section – WSC must remove the statement at the end of the fourth paragraph and the fifth paragraph which states the proposed seed mix "may be modified somewhat according to specific circumstances." Modifications to seed mixes must be approved by the Department.

Page 104: Introduced Species section – A justification for the use of the introduced species tall wheatgrass must be provided.

Woody Species Section: WSC must commit to establishing a set number of woody plants per acre in the woody clump plantings based on pre-mine densities. Additionally, once baseline vegetation community mapping is provided, the number of acres of woody clump plantings should be updated to the amount pre-mine.

Woody Species Section: Woody clump plantings must be established in all post-mining land use areas, including cropland, as per MCA 82-4-232(9). This could be accomplished by planting woody species in draws and incised drainages which are constructed in or adjacent to cropland areas.

Woody Species Section: All species to be used for woody clump plantings must be approved by the Department. The last sentence of the last paragraph on page 104 indicates must be changed to reflect this.

Page 106: There is a table that represents habitat types. This table needs to be located in 304(1)(j). Secondly, the habitats need to be described, not land type. For example, "undisturbed" is not a habitat

type. A habitat is a specific environmental condition related to either a species or a compilation of species. This table will also need to match exhibit H.

Page 107: Wetlands/Wet Meadows section – WSC must provide an account of the number of acres of wetlands pre-mine and commit to replacing these acres post-mine, as per ARM 17.24.751(2)(f).

Page 108: Erosion Control section – The creation of diversion ditches in reclamation is not an approved normal husbandry practice and is not allowed. Please see the Department's approved normal husbandry practices document for a list of approved methods to control erosion on reclamation.

Fertilization section: Fertilizer application is not allowed as a normal husbandry practice as per ARM 17.24.718 and the Department's normal husbandry guidelines, except cropland and pastureland post-mining land uses when in compliance with ARM 17.24.725 and the Department's normal husbandry guidelines Agricultural Activities section. WSC must update this section of their permit to reflect these rules and guidelines.

17.24.313(1)(h)(ii): Page 109 - This section does not address the schedule of revegetation.

17.24.313(1)(h)(iii): The response to this rule should be located here not in 313(1)(h)(i) as proposed.

17.24.313(1)(h)(v): The application states soil ripping will occur "if needed" to reduce compaction. Ripping is not optional without a variance from the Department. Please remove the phrase "if needed."

17.24.313(1)(h)(vii): Page 110 - Update this section to specify that only non-invasive or sterile annual grasses will be used as cover crops.

17.24.313(h)(viii): Page 110 – This section refers to permit section 17.24.313(5)(d), which does not exist, please update the reference.

17.24.313(1)(h)(x): Page 111 – Evaluation Revegetation Success section: The control/reference area is not within the permit boundary; please provide evidence that WSC has control of the surface management in the control area. Additionally, the vegetative control area is described as being located in exhibit F1 and exhibit C1. However, it is not located on either exhibit.

Evaluation of Revegetation Success section: This section cannot be evaluated until vegetation mapping of the control area used for evaluation of revegetation success is provided. This information can be included in section 17.24.304.

Evaluation of Revegetation Success section: No explanation is given for the Hayland Production Standard table provided in this section. The permit document must explain the location of these hayland reference areas, how they are managed, and demonstrate that the management and conditions are similar enough to the permit area to be an effective reference area.

Page 112: Pastureland Success Criteria – The control area is not shown on Exhibit C1, it is found in Exhibit F1, which is illegible and needs to be resubmitted. Please update the references in this section.

Pastureland Success Criteria: Last paragraph of page 112 and first of 113. Please see earlier comment regarding woody clump plantings.

Page 113: Pre-1978 (Prelaw) Reclamation – On bullet number 3, the caveat that the Department must approve and the operator complete the conversion to cropland or hayland must be added, as per MCA 82-4-235

17.24.313(1)(h)(x): What is the reasoning for including text in regards to the "analysis for toxicity?" This is not required by this rule and may simply need to be relocated to a different location in the application.

17.24.313(1)(h)(xi): The soil and spoil monitoring is stated to be located in 723. However, 723 does not include this information.

17.24.313(1)(i): The application references 17.24.632 as having a description of the drill hole abandonment procedures. However, 632 does not have this procedure described.

17.24.314(1): Please submit a map that includes the trace of the coal outcrop.

17.24.314(1)(a): P.119 - The first sentence states that "mining will continue in the future without adverse hydrologic impacts." Dewatering an aquifer and causing changes in water quality may well be considered "adverse impacts". Please modify the sentence.

The reference to surface water would indicate that the appropriate appendix is Appendix C, Regional Surface Water Hydrology, rather than Appendix D, Groundwater Hydrology.

In the second paragraph, please change the word "assure" to "contribute" or other appropriate word to make the sentence more accurate.

17.24.314(1)(b) & (c); 17.24.304(1)(f)(i)(C): The landowner well list (Exhibit D-2) in the permit was last updated in 1991. Please update the list and/or verify the list with current databases maintained by DNRC and MBMG (GWIC). Some nearby domestic wells may have been abandoned and this should be indicated in the permit. The wells should be shown on a map to allow easy identification of wells potentially affected by mining. NE&W listed and showed many more wells (including monitoring wells) in Appendix O – Attachment 1, than in the list provided in Exhibit D-2. Please resolve this discrepancy.

P 119 - Regardless of the "hydraulic properties" in the vicinity of the Etzel North well, it stands to reason that this well, completed in Pust coal, would be impacted by mining given it's proximity to the pit and the drawdown projected by the groundwater model, as well as the drawdown shown in the hydrograph for monitoring Well 284, located immediately east of the Etzel residence. Please indicate the current status of this well. If an alternate water source for this well has not been provided, please indicate why not in the PHC.

17.24.314(2)(a): Please address this rule with regard to groundwater as well as surface water.

Additional narrative is needed describing how runoff will be routed through and/or around Section 21 as mining progresses. What steps, if any, will be taken (pits, berms, swales) to route runoff away from the pits. Will a channel be maintained to keep runoff from the 21N area out of the pits?

17.24.314(2)(d): P. 121 - Please review the monitoring tables that show the wells that will be monitored for water levels and water quality. Some wells that are part of the monitoring network have been omitted. The list of wells at the bottom of the page also needs to be revised.

P. 121 - As required by the rule, please indicate the plans for reporting (i.e. the date at which the report will be submitted) annual and semi-annual monitoring results.

17.24.314(2)(d): P.122 - The table name should be Surface Water Monitoring Parameters.

17.24.314(3); 17.24.631; 17.24.633(4); 17.24.643(1): P. 123 – As the narrative in this location is not sufficient to address all aspects of the probable hydrologic consequences (PHC), please refer the reader to the location of the PHC in Appendix O. An improvement would be to eliminate the text on page 123 under 314(3) and place it in the PHC.

Appendix O, P. O-7, Groundwater Quality - There is no revised Exhibit D-3 (statistical tables of groundwater quality) in the application. Exhibit D-3 in the current permit gives analytical results for water quality samples taken from 1982 to 1990. A more comprehensive and representative water quality exhibit should include a table of monitoring sites with the average and range of analyte concentrations (for samples collected 1982 through the 2009 water year), the number of samples collected and the date range. Please add this to the permit in place of the current Exhibit D-3 as it has no historic value.

Appendix O, P. O-7, 4.2.4.1 – Savage Mine Water Supply – Please indicate the source of water used at the mine and the approximate usage at the mine office and associated facilities.

Appendix O, P. O-12 – Groundwater Quantity – The statement that “Mining ... will ... cause diminished water levels in this aquifer in the mine vicinity for the duration of mining” fails to indicate that water level recovery is not expected in the spoil and associated Pust coal for more than 40 years after mining, as predicted by the groundwater model. Please expand the discussion to include this information.

Appendix O, P. O-12 – Groundwater Quantity – The narrative states that the presence of hydrogeologic boundaries will help prevent drawdown impacts from extending beyond mine permit boundaries. Please indicate what hydrogeologic boundaries this sentence refers to. Also, contrary to the narrative, the groundwater model indicates that drawdown will definitely occur outside the mine permit boundary. Please revise this section.

Appendix O, P. O-13 – Groundwater Quantity – The discussion about predicted drawdown based on the groundwater model does not reflect model results for mining in Application 00185. Please review Nicklin’s report, particularly figures 13 and 15, and revise this section.

Appendix O, P. O-14, When making a determination regarding potential impact to the Etzel North Well, please use information about the thickness of the water column in the well and the map of predicted drawdown (as predicted by the groundwater model) to determine the likelihood of drawdown impacts to this well. In anticipating water quality impacts, please consider the position of this well with regard to mining (up, down or cross gradient) and groundwater flow direction.

Appendix O, P. O-14, 5.2.3 – Groundwater Wells and Springs. The discussion under this heading suggests that wells other than monitoring wells are shown on Exhibit D-1. Exhibit D-1 is entitled Surface and Groundwater Monitoring Sites. No private wells are shown. Please modify the discussion so as not to be misleading. A location map of private wells should be included with the PHC to facilitate identification and discussion of potential impacts to private wells.

Appendix O, P O-15, Residual Impacts – As well as discussing whether or not spoil water will be available “to support a limited number of livestock wells”, please indicate when and where this can be expected given drawdown extents. Also, please indicate if and where spoil water quality will be suitable for livestock consumption.

Water quality descriptions in Appendix D and Appendix O are not consistent. The range and average TDS on pages D-4 and O-7 do not agree.

Appendix O, Probable Hydrologic Consequences, is vague about the expected consequences of diminished water quantity and quality and potential impacts to water users: Using the modeled

drawdown extents and private well locations, please locate private wells within the drawdown area and discuss specific well locations likely to experience impacts due to drawdown. For instance, please be more specific about the likelihood of impacts to the Etzel North well (completed in the Pust Coal) given its location. The existing discussion of this well is inadequate.

Regarding water quality impacts, please give a quantified range of water quality changes as a result of mining at Savage by comparing premining or upgradient water quality analyses to analytical results from current spoil water samples. What is the eventual downgradient reach of the more mineralized (spoil) groundwater? What will happen to groundwater when it reaches the downgradient coal outcrop? Are there downgradient springs that may be affected? Are any downgradient/cropline springs currently showing effects?

Appendix D, Groundwater Hydrology, p. D-5, Known Uses of Water, does not actually discuss the known uses of water but refers to a sampling history of two local domestic wells. Please begin the discussion by indicating the known uses of groundwater in the area. (This topic is also discussed at 314(1)(b) & (k) on p. 119 of the permit narrative and again in Appendix O).

17.24.315(1)(b)(iv): The rule requires a description of the maintenance requirements for each structure. WSC stated "describe the operation and maintenance requirements for each structure." This is not an acceptable response.

17.24.315(1)(b)(v): The rule requires a description of the timetable and removal of each structure. Again, WSC repeated the rule without providing any information.

17.24.315(1)(d): WSC is simply repeating the rules in the application. In this case the rule is requiring WSC to provide operation plans and details. Please address the rule.

17.24.321: There are two roads (haul or access) that must be designated on Exhibit N and added to Exhibit AA: the haul road from Pit 2 North Ramp to the coal stockpile area and road from approximately 40+00 on the South Haul road to the coal stockpile area. Exhibit S is no longer applicable. The certification statement in ARM 17.24.321(3) must be added to Exhibits N and AA.

The typical cross sections and profiles for haul roads are reported to be located in Exhibit AA. Exhibit AA does not have the required information. Additionally, all road types (currently described as haul, access, and service roads) are required to have a typical design.

The text describes a single power line located off of the permit. This is not accurate to what is currently in use.

The text discusses the use of 3 ramps. Please verify that there will only be 3 ramps present.

Roads must be stabilized to comply with 17.24.601(5) not 313(1)(h) as stated.

The service road discussion says roads will comply with 17.24.601(5) "if" it is determined necessary. This must be revised so it reads WSC "will comply" unless otherwise approved.

17.24.321(1)(a): The permit must address drainage control related to roads: ditches and culverts.

17.24.321(3): The application states the road as-builts will be submitted with the annual report. This is incorrect as the as-builts must be included as part of the permit.

17.24.322(2)(a)(i) and (ii): In addition to information provided in the application, WSC must supply a narrative interpretation of results and identify the total reserves; specifically, tables summarizing the quality and quantity data of all reserves within the boundary of the permit and a description of the method used to calculate this information. The same information must be broken out for the amendment area.

17.24.322(2)(b): In association with the reserves data summary identified above, WSC must provide a description of the location, quantity, and quality of coal left un-mined within the permit boundary and an explanation of why the coal will not be recovered. Likely, the quality will not change from that of the reserve. The location and amount of coal not recovered, and possible the explanation could all be depicted on an exhibit. An existing exhibit could be used.

The text discusses leaving a 500 foot by 1300 foot piece of coal due to the presence of a power line. Is this coal still in place? Has the power line been relocated?

17.24.324: The text must be corrected to clearly demonstrate compliance with the requirements in 17.24.306 regarding Prime Farmlands.

17.24.325: The absence of Alluvial Valley Floors receives a single sentence at section 5.3 in the PHC and mention in other places in the permit. Although there are no identified AVF's within or near the permit area, please indicate why no AVF's have been identified, i.e. the absence of geologic features or water availability criteria that define an AVF pursuant to 17.24.325. Geologic and water availability features include the existence of flood plains and terraces underlain by unconsolidated stream-laid deposits and/or the availability of water by flood irrigation or subirrigation, etc.

17.24.326: WSC must provide details for the proposed auger mining or remove this text from the application.

17.24.501(6): It appears as though a variance from the backfilling and grading standards is required and that Appendix Q may be intended to address the variance. The narrative on page 151 must reference Appendix Q or Appendix Q must be made part of the narrative. Appendix Q must be revised because it refers to the old regulations: rough backfilling and grading and 180-days. This and any variance from the four spoil ridge regulation must be addressed properly. The permittee might consider a reclamation sequence map depicting the date in which specific polygons of reclamation will be completed.

17.24.510: P. 156, Disposal of...Fly Ash, last sentence in first paragraph. The text states "...Savage requested reports from Holly Sugar of the volumes of ash hauled to the mine site and will record the information at the mine office." The past tense should be consistent throughout the sentence to avoid misinterpretation. Please affirm whether or not the ash volume information is currently maintained at the office. Since this is historic information that needs to be preserved, please include this information in the permit. Using this information, it would also be helpful to report the total amount of ash deposited in the mine pit and the volume percentage it represents of the total backfill in the pit(s) in which it was placed.

P. 157, third paragraph, the text is unclear whether or not coal processing waste (CPW) is still being placed in the pit. Please indicate if the practice is current and in which pit(s) the material is (was) placed. If the practice has been discontinued, please indicate the duration of this practice and when it was discontinued.

17.24.518 and 524: As per revised narrative on page 160, the section line and associated permit boundary are within the right-of-way for the county road. To be compliant with 82-4-227(7), MCA, the buffer zone narrative on page 159 must also commit to no mining activities within 100' of the county road right-of-way. In addition, the revised text on page 160 incorrectly referenced the township as T2N when it is T20N. The permit boundary and the buffer zone must be appropriately signed.

17.24.521: WSC must provide a statement indicating the Temporary Cessation that was granted by the Department in 2008, what area of the mine is affected, and that except for mining all other activities will proceed as per the approved permit.

17.24.523: WSC must submit a fire control plan for Department and MSHA review.
17.24.605(6): The text uses a different title for Exhibit D-1 than the title in the application.

17.24.610: WSC should indicate if there are any roads that will be proposed for retention. If there are no roads to be retained then WSC should make that statement.

17.24.623: The proposed blasting notice has an error in the legal description.

17.24.624(7)(a): WSC must commit to not blasting within 1,000 feet of the residence in section 16 or provide evidence and/or documentation as to why the Department should approve a variance.

17.24.634: The pre-mine and post-mine stream channel profiles on Exhibit C-8 for the North Drainage and South Drainage #1 need to be adjusted to approximate pre-mine drainage profiles. Labeling of Disturbance and Permit Boundaries also need to be corrected as they suggest disturbance outside the permit boundary (e.g. South Drainage #1 PMT channel 20 ft below pre-mine and North Drainage PMT channel 20-50 ft. below pre-mine, outside of permit/disturbance limits).

17.24.645: P. 192, last paragraph on page, first sentence: Please clarify that the active monitoring plan and monitoring wells are listed in the Annual *Hydrology* Report.

P. 195, top of page, the current edition of Circular DEQ-7 was published in February, 2008. Since DEQ-7 will be updated on a regular basis, it would be better to refer in the text to "the latest update of circular WQB-7", or "the most recent edition of circular WQB-7" rather than a specific publication date.

Well completion and groundwater data indicate there are a number of compromised wells in the monitoring network. Wells 263 and 261 are reported as "obstructed" in recent monitoring events, and from discussion with mine personnel, it appears that the obstructions cannot be removed. Upgradient well 263 can no longer be accessed for water quality samples but is still accessible for water level measurements. Well 261 has no accessibility and must be replaced in a location out of the path of mining. Upgradient coal well OB-2 has experienced failure, as shown by an abrupt and marked change in water level and water quality and should no longer be used to evaluate potential mining impacts. OB-2 does not need to be replaced, as coal wells 285 and 284 are sufficient for monitoring upgradient coal in the area immediately west of the pit in Section 28.

Savage must provide daily (or more frequent) precipitation and climatic data records (e.g. including daily minimum & maximum and/or hourly temperature, and daily precipitation and snow depth) in mine baseline data, annual reports and routine operational and post-mine monitoring. The mine climate monitoring site(s) also need to be shown on hydrologic monitoring site maps (e.g. Ex. D-1 and Annual Hydrologic monitoring report site maps). The permit (e.g. Appendix E and related descriptions) should include adequate daily baseline data and summaries for a representative/baseline period. Subsequent daily data and descriptions should be included in Annual Hydrologic Monitoring reports, periodic updates and digital data submissions.

17.24.646: The operator must include hydrographs, descriptions and digital flow data for Weir sites 21ADD (North Coulee) and 28ADC (South Coulee) in Appendix C or other relevant locations, and in data submissions. The weir sites (and other discontinued or suspended sites) need to be included on hydrologic monitoring sites maps (Ex. D-1 and Annual Hydrologic Monitoring report site maps). The two weir sites provided undisturbed (by mining) upgradient flow data for the mine area and need to be

evaluated relative to other local stream, pond, spring, well or climate data, including downstream MPDES discharges (e.g. North Pond 2, South Pond 1), Spring 22DDA, or other relevant information.

Data from the 21ADD and 28ADC weir sites (and from new sites in representative reclaimed and undisturbed basins) should be evaluated to assess hydrologic responses in premine and reclaimed drainages relative to land use and other changes. For example, undisturbed runoff and water chemistry data from the Weirs should be used to assess predicted premine flows (e.g. based on premine small grain (or other appropriate) land use, as discussed in Section 314).

The operator needs to evaluate and propose appropriate additional or revised surface water monitoring to address long-term hydrologic bond release requirements and to demonstrate that reclaimed drainages, ponds and springs or other surface water resources would approximate premine hydrologic characteristics in North (Peabody Coulee) and South (Garden Coulee) Drainage tributary basins. Because premining streamflow and water quality data are limited or nonexistent, the operator must include monitoring of similar representative undisturbed drainage(s) nearby for comparison with reclaimed mine drainages as they become available for monitoring. Note that flumes or other non-ponding flow measurement control sections are recommended over weirs due to limitations with low flow (and higher flow) measurements in ephemeral streams.

The operator must correct Exhibit C-4 (Appendix C) which includes average discharges rather than peak discharges; the average discharges are already in Exhibit C-3.

17.24.702(4)(a): This section references 17.24.313(1)(g)(xi); this reference needs to be corrected.

17.24.701(2): The statement "Westmoreland Savage Corporation will salvage soil in multiple or single lifts as described in permit section 17.24.702 (6) and outlined in response to ARM 17.24.313(1)(g)." is incorrect. The references noted do not explain why single lift salvage is appropriate.

17.24.711: The rule citations are incorrect as 711 only has a subpart (1)(a) and (1)(b). The confusion comes when the MCA is being cited within the ARM.

17.24.711(2): If it is determined that prime farmland exists within the proposed permit area then WSC will need to revise/update this section.

17.24.711(3) and 17.24.713: Page 203 and 204 – Please update the reference to the non-existent section 17.24.313(5).

17.24.713: Page 204 - This rule is addressed in the permit section 17.24.313(1)(h)(vi). Section 713 can simply reference section 313(1)(h)(vi).

17.24.723: The application does not commit to a schedule for submitting the monitoring data.

17.24.723(1): Page 206 – The first paragraph should reference 17.24.313(1)(h)(ix), not (1)(g)(ix).

The vegetation monitoring program is not described. The second paragraph in this section is the same used to describe how WSC will determine the need for management on revegetation areas, but includes no vegetation monitoring program. WSC must submit a full vegetation monitoring program.

17.24.723(1): There are two additional references that are out of date: 17.24.312(1)(d) and 17.24.313(1)(f)(iv).

17.24.723(2): Page 206 – WSC must submit a schedule and manner for submittal of the monitoring data.

17.24.724: Page 207 – WSC has simply copied the rule language into this section. They must actually submit a plan for success criteria, including descriptions of reference areas or standards to be used. Much of this information is presented in permit section 17.24.313(1)(h)(x). (This comment applies to the permit language for the entire 724 rule, *concrete details* must be provided.)

17.24.726 and 751: Pages 208-210 – Again, most of this permit is copied directly from the ARM. WSC must provide *concrete plans* as to how vegetation measurements will be collected and how fish, wildlife and related environmental values will be protected.

17.24.726(3): The application contains information from an outdated rule.

17.24.751(2): This rule should reference the plan in 312 unless additional measures are to be taken to address the requirements of 82-4-231(10)(j).

17.24.751(2)(a): The Guidance document that is cited should be updated to “*Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Edison Electric Institute, APLIC, and the California Energy Commission, Washington D.C. and Sacramento, CA)*”.

17.24.751(2)(b): The statement that infers the wildlife population densities are low and that the wildlife is mobile must be removed from the application. Only commitments and documented facts should be included.

17.24.751(2)(b): The reference to migrating ungulates is unnecessary as the rule considers all large mammals, even the ones that do not migrate. WSC should revise text to commit to compliance with the rule or request a variance from the Department.

17.24.762: There is reference to 17.24.304(12)(a) which no longer exists. WSC must also address how they are going to address the intent of each section of this rule, and not just restate the rule.

17.24.764 (1)(a): The use of had, underlined in the following permit quote, seems misplaced and should be evaluated. “prior to mining, all soils within the proposed cropland reclamation area will have had at least capability class IV, based on U.S. Natural Resources Conservation Service criteria;” Suggested revision; “prior to mining, Westmoreland Savage will confirm that all soils within the proposed cropland reclamation area are classified with at least a capability class IV, based on U.S. Natural Resources Conservation Service criteria.”

17.24.764(1)(h): Prior to approving the Cropland landuse the Department is required to make a determination regarding saline seep. WSC will then include this determination in the application.

17.24.811 through 17.24.815: WSC must submit the required documentation that prime farmland is not present. Once this has been submitted and reviewed the statement made in this section can be retained, if prime farmland is present then this narrative must be corrected.

17.24.821 and 823: Page 214 – No plan for alternative postmining land uses has been submitted to the Department. The narrative in both sections should reflect this.

17.24.1129: WSC must commit to submitting the annual report by a certain date. This date should correlate to 30 days from the anniversary date of the permit as required by MCA 82-4-237. WSC may propose and the Department approve an alternate date, provided sufficient justification is provided.

General

Maps

Many of the maps in this application do not contain all of the information required by the rule. Maps containing topographic contours do not indicate the contour interval, many maps do not include all features in the legend, and many maps do not include section lines and numbers.

Exhibits

17.24.305: The Department cannot accept any map or exhibit that is not in a legible format. All illegible exhibits must be re-created so they are in a legible format.

17.24.305: Multiple maps are labeled "exhibit" but referenced as "appendix. This needs to be corrected through out the application (example appendix K and page 146).

A1 Approximate Mine Plan

1. The more appropriate background for this map would be the most recent As-built/Existing Topography, as is shown in Exhibit D1, so that a comparison can be made to the existing workings. Plus, the existing topography would still show the pre-mine topography in the area of the proposed amendment.
2. The contour interval needs to be written on the map.
3. The history of mining should be brought forward from the currently approved Exhibit A1 in the permit and added to this map to show the full picture of past and future mining activities, rather than simply a large blacked out area.
4. It appears that the map is missing a ramp in the NE1/4 of section 21.
5. The proposed soil stockpiles are not on the map as indicated in the text at 17.24.702(3)(a).
6. The mine cut numbers must be included on this map.
7. This map has a topography layer that incorporates pieces of pre-78 as-built and pre-mine. One layer needs to be chosen for the background or at a minimum the pre78 should be designated.

B1 Approximate Postmining Topography with Drainage Basins

1. The drawing will not project properly.
2. The surface facilities must be removed
3. North Pond 2 must be removed or requested for retention under 17.24.642
4. The proposed topography in section 21 does not meet the requirements for Cropland under 17.24.764(1)(d) which requires all land to be less than an 8% grade. Until this area is approved by the Department for an alternative post mine land use under 17.24.823 this PMT cannot be approved.
5. The propose PMT does not meet the definition of AOC. Also, the highwall is obvious in all directions and does not blend with surrounding topography as required. And the proposed mountain is not approvable as there is not feature similar to this in the pre-mine landscape and it does not qualify as a box-cut.

B-2 Plug Cross Section

1. This map is out dated with the amendment and does not have a PE certification.

B-3 and B-4 Iso-Slope Maps

1. The data that compare pre and post mine should be combined to assist in the evaluation.
2. A graph displaying area (percent of total) vs slope zone that shows both pre- and post-mine would be helpful.
3. The Histogram on B-4 is mislabeled.

C1 Revegetation & Wildlife Enhancement Map

1. Topography is incorrectly labeled as "Topography USGS 1968 with 1994 flight". The background topography appears to be the proposed PMT, as would be appropriate for this map. Please change the notation on the map to reflect this and include the date of the PMT so that subsequent edits/revision to the PMT can be differentiated (e.g. "Proposed MPT Dec2009" or something similar).
2. The contour interval needs to be written on the map.
3. The scale is off by a sixteenth of an inch (short).
4. This map is not approvable because alternate post-mine land uses are proposed; however, an alternative post-mine land use is not proposed in the application (e.g. 17.24.821 and 17.24.823). Also, wildlife enhancement features are defined as components of the landscape that are established for the benefit of wildlife. WSC can not claim incidental shrubs as effort for enhancing wildlife.

D-1 Approximate Hydrologic Control Plan

1. This map is incomplete as it does not show culverts, diversions, road ditches, or alternate sediment control locations. Also, the text in 17.24.317 must include these modifications.

D-2 Pre-mine Topography

1. This Exhibit should be combined with Exhibit Q.
2. WSC should also delineate on this map where the topography is actually historic mining. The current map is claiming that the middle impoundment area is pre-mine topography.

C2 Respread Depths

1. Please resubmit along with accompanying CAD drawing. The map in the permit is of poor quality and does not cover the proposed amendment area.

F1 Range Site Map with Control Area

1. Please resubmit along with accompanying CAD drawing. The map in the permit is of poor quality and does not cover the proposed amendment area. 17.24.304(k)(ii) expresses preference for an aerial photo background as opposed to the topography background on the existing map. Pre-mine soil survey does not cover amendment area.

F2 Pre-mine Land Use

1. The contour interval needs to be written on the map.
2. The land use areas have changed from what is currently in the permit. If the land use is going to change from what is currently permitted, then we need to get another map that shows the "historic land use" in addition to the new pre-mine land use as supported by 17.24.304(l)(i). WSC must accept the currently approved pre mine land use or provide evidence that supports this modification.
3. Poor quality should be redone.

F-5 Pre-mine Vegetation Map

1. This map is not a vegetation community map as required. This map is describing WSC's version of land uses.

H Wildlife Habitat Map

1. Aerial photo background needs to have a date sited on the map.
2. Many layers (in the CAD drawing) have overlapping polygons. Such overlapping polygons create problems if they are not viewed in the correct order or independently, or if the

corresponding "x" layers are not "erased" from the extent of the polygon. Please resubmit the CAD drawing with corrected layers.

3. Poor quality should be redone.
4. The habitat types described are not accepted habitats. For example, Reclamation, Natural Revegetation, Disturbed Rangeland, etc. are not habitats.

I Permit Area Map Tract Details

1. The Exhibits binder table of contents shows that Exhibit I is included in the application binder, however there is no map is included in the binder, nor is Exhibit I included on the accompanying CD. Please submit Exhibit I.
2. Exhibit I in the permit is called Metes and Bounds Map and Permit Area Map which differs from this map title. Do we need to address this?

J-1 Worst Case Bonding Area

1. This map does not represent the current conditions.

J-2 Worst Case Bonding

1. This map does not represent the current conditions.

K6 Geologic Cross Sections

1. The drawing will not project properly.

L Surface and Mineral Ownership Map

1. Ownership information must extend to include all lands within ½ mile of the permit boundary.
2. Recommend separating surface and mineral ownership information into two maps. This map is very difficult to read and understand. It requires the reader to spend an inordinate amount of time deciphering the labels, when conveying this information on two separate maps would be much simpler.
3. The list of mineral owners (p.5) does not exactly match the list of mineral owners shown on the map.
4. The simplest way to arrange the set of information contained in this map and in the tables on pages 5-8 in the application, would be to use ID numbers in the map that correspond to the tables containing ownership and lease information. As it stands now, it is very difficult to decipher which names goes with which parcels for each separate category (surface ownership, lease, and mineral ownership).
5. The map shows a surface owner in section 22 only as "MDU", but there is no clear explanation in either the map or narrative that describes who or what MDU is. The state cadastral layer does not contain ownership information for that parcel either.
6. Leases are shown that are not currently held by WSC.

N Permit Area Map

1. The contour interval needs to be written on the map.

Q Premine Topography and Cross Section Locations

1. The drawing will not project properly
2. In the "List of Exhibits" at the front of the "Exhibits" binder, Exhibit Q is referred to as "Test Hole and Cross Section Locations", yet the title on the map is "Pre-mining Topography and Cross Section Locations". Additionally, Exhibit U in the List of Exhibits is titled "Pre-mining Topography and Cross Section Locations", but is not included in this application. The titles of maps in the List of Exhibits should match the titles on the maps. Please resubmit corrected copies of both maps, or note if one is no longer needed.
3. The legend incorrectly refers to drill holes for "Application 00184". Should read 185.

4. The vintage of the pre-mine topography must be included on the map.

R Coal Reserve Data

1. The Mined Out areas in this map are incomplete and do not include the same areas as shown in Exhibit A1 (i.e. a small chunk inside the current permit area and a larger chunk that straddles the permit boundary, both in the middle of section 22).
2. WSC controls reserves in section 28 but has not documented these reserves on the map.

T Facilities Area

1. The drawing will not project properly
2. The "Savage Facilities Building" layer that is provided in other drawings should be provided in this map.
3. The "crusher" footprint is not a closed polygon. All building and facility footprints should be closed polygons.
4. None of the building footprints for neighboring farms include descriptions. In addition, several of the building footprints do not correspond to existing buildings as seen in the 2009 NAIP Aerial imagery, or are missing. All neighboring building footprints should be included and up to date, and should include descriptions. This is especially important for the home site in section 21, which will be mined through.
5. There are additional facilities located in the SE1/4 of section 22 (junkyard, magazine, etc).
6. Feature Number 13 on Exhibit T, "Old Tipple" must be reclaimed unless a demonstration is made that it is currently being utilized.

U Premining Topography and Cross Section Locations

1. See notes for Exhibit Q above.

V-1 through V-4 Cross Section of Pre-mine vs Spoil vs Post mine topography

1. These Maps are out dated with the amendment and are also illegible and must be updated to current standards.

X

1. This map is illegible and must be updated to current standards.

AA- Haulroad Profile and Cross Section

1. This map is reported in the application to have been updated. However, a revision version is not in the application. The current version in the permit is illegible and outdated and must be updated to current standards.

Appendix Exhibits

F5 Pre-mine Vegetation Map

1. The contour interval needs to be written on the map.
2. Many of the layers in the CAD drawing have overlapping polygons. Such overlapping polygons create problems if they are not viewed in the correct order or independently, or if the corresponding "x" layers are not "erased" from the extent of the polygon. Please resubmit the CAD drawing with corrected layers.

H1 Soil Survey Map

1. Aerial photo background needs to have a date sited on the map.
2. Please resubmit this map with soil mapping units as closed polygons. Please also display the estimated salvage depths for each unit. According to 17.24.304(k)(ii)(A) the map must include " the soil mapping units, their boundaries, a legend of the soil mapping units and the estimated

salvage depths of soils within each mapping unit, consistent with the information submitted under ARM 17.24.313(1) (f) ;(B) soil sampling locations"

3. Exhibit F1 in the permit (not included in this application) shows the previously approved soil survey, however this map is illegible and unacceptable. Please incorporate the soil mapping units from that map into Exhibit H1 in order to provide a complete picture of baseline soil conditions.
4. Page H-3; the last sentence references Exhibit C1 for soil depths in the reclamation plan; however, C1 is a vegetation and wildlife map without any references to soiling depths.

Appendix L-Wildlife Management and Monitoring Plan

1. The plan is citing an REA raptor guideline. The approved standard for raptor protection on power line construction is cited in 17.24.751. Please revise the text to the approved standard.
2. The propose plan is stating that no wildlife enhancement feature will be created in grading.
3. Pages L1 and L2 should be removed as they are describing reclamation processes and have not commitments to wildlife management or monitoring, with the one exception being the reference to the power line construction.
4. The Wildlife Monitoring plan should be revised as it appears to be collecting more information than required for certain species, whereas this effort could be re-directed to collect more usable data.

General

Overburden Sampling

The permit needs to have a better explanation as to why overburden sampling was not completed for this amendment. Data seems to demonstrate, and geology would point toward the amendment area containing suitable spoils; however, the explanation is not thorough enough. For instance, 17.24.313 explains why in the current area overburden is generally suitable; however, the sites mentioned in the text on page 96 are not legible on Exhibit Q nor does it seem like they are all on the map.

General

Post-Mine Topography

17.24.313 (1) (e), 17.24.634 (1) (g): Exhibit B-1 "Approximate Post Mine Topography" - the contours show an abrupt grade break in the channel profile of the southern most tributary (Pit 4, South Ramp) at it's confluence with South Drainage 1. The contours should be modified to smooth the tributary profile. Also, there is a convexity in the drainage at the interface of reclamation and native.

The overall PMT proposed for Pits 3 and 4 is acceptable. There need to be an adjustment made to route the northern portion of proposed reclaimed South Drainage #1 into reclaimed South Drainage #3. The adjustment should result in post-mine drainage basins that better approximate the extent of the two respective pre-mine drainages.

The South Drainage # 1 is generally acceptable. The ground surface tends to break over the backfilled Pit 3 & 4 highwall which does create some convexity for minor drainage ways. This is largely unavoidable; however, and the backfill slopes should be flat enough to minimize erosion. The plan does appropriately add some channel length to the larger highwall drainages.

Section 21: The proposed PMT in Section 21 does not appear to make an adequate attempt to meet the AOC or the pre-mine cropland land use. The hill in the center of the section appears inconsistent with efficient mechanized crop farming. The drainage design does not approximate the pre-mine condition. Several drainages would be more appropriate than the single long drainage being proposed. The PMT for G:\NEM\COAL\SAVAGE\APP&RENW\Application_00185\Technical_comments\First Round Deficiency Comments.doc

Section 21 must be redone, reducing the height of the final highwall (currently proposed at ~50 feet), reducing/eliminating the large hill proposed for the north ½ of the section, establishing a drainage system that approximates the pre-mine condition, and providing for restoring the post-mine land use of cropland. Pit 2 PMT does not complement the drainage pattern and it depicts areas of rolling topography where pre-mine topography was generally flat. The pre-mine drainage pattern would be more acceptable if the south end of the pit drained out Pit 2 South Ramp and the NW corner of the pit drained out Pit 2 North ramp. The E/W mine passes could drain as depicted. As for rolling topography, the 5:1 final highwall grading would be more palatable if one less pass were mined, which would leave room to grade a 12:1 slope.

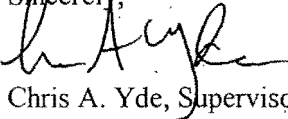
17.24.501(4): Similar to what Westmoreland has included in the permits for the Rosebud Mine, WSC must incorporate permit commitments to provide for topography and topographic features that better approximate pre-mine topography, drainage basins, valleys, floodplains and channel characteristics.

General Thoughts:

Savage added pre and post-mine slope histograms to the permit. While this is good information, it did not include any previous reclamation in the comparison. Instead, the analysis includes only Pit 3 final pit reclamation and Pit 2 from about the middle of Section 21. This analysis probably skewed the results away from flat farmland to something more topographically diverse. This analysis must be redone and include the entire permit area; it would be ok to leave the middle impoundment out due to its special circumstances.

Please feel free to contact the Department with any questions regarding this First Round of Technical Deficiencies regarding Amendment Application 00185, Savage Mine.

Sincerely,



Chris A. Yde, Supervisor
Coal and Uranium Program
Industrial and Energy Minerals Bureau
Ph: 406 444.4967
Fax: 406 444.4988
E-mail: cyde@mt.gov

CY/sg

C: Jeff Fleischman, OSM, Casper
Gene Hay, OSM, Denver

FC: 620.003 (Application 00185)