WRITTEN FINDINGS

Prepared by:

Montana Department of Environmental Quality
Industrial and Energy Minerals Bureau
Coal and Uranium Program

for

AM4 Additional 49 Acres
Western Energy Company, Rosebud Coal Mine Area B

Western Energy Company
Permit No. C1984003B

Rosebud County, Montana

December 4, 2015

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ATTACHMENTS

INTRODUCTION

1. Western Energy Company's (Western's) Rosebud Mine Area B was originally permitted on January 18, 1978. A total of three amendments to the original permit area have been previously approved. Additionally, the permit area has been adjusted with a couple of incidental boundary changes (surface disturbance only – no additional mining). The amendment area does not include any new federal surface or coal that was not in the existing federal mine plan (Permit Number MT-0002, 12/80).

2. Western applied to the Montana Department of Environmental Quality (DEQ) for the fourth amendment to Area B of the Rosebud Mine (AM4) surface mining permit (the permit) on June 15, 2009. The application was ruled complete on August 7, 2009. After eight rounds of acceptability deficiencies the application was ruled acceptable on July 8, 2015.

3. AM4 proposes the following changes to the permit: a 49 acre increase in the area permitted; a 146 acre increase in the proposed amount of surface disturbance limit (5,531 to 5,677); 8.6% increase in the minable coal reserve (approximately 12.1 million tons); 306 more acres of coal removal or 8.3% increase in the amount of coal aquifer disturbed (3,686 to 3,992); re-calculation of the performance bond to account for current practices and future conditions (increase from $48,403,696 to $73,650,000); and, changes to the postmine topography (PMT). The additional proposed disturbance and mining will be a continuation of existing operations to the south and east.

4. Mining and reclamation operation under AM4 will not deviate substantially from what was previously approved. As coal is removed, the operator will proceed with reclamation according to the requirements of the Reclamation Plan, as described in Section 17.24.313 of the currently approved permit. Topsoil will be removed prior to mining and either direct-hauled to areas graded to the approved PMT or stockpiled. Soil stockpiles will be marked with an identification sign and stockpiles will be protected from erosion. Currently approved permit maps depicting vegetation plans will need to be reviewed and updated as a general course of permit renewal, mid-permit review or an additional minor revision to the permit. Regardless of future permit revisions, the vegetation plan will be monitored over time and adjusted as necessary to achieve successful establishment of plant communities which will support the approved postmine land use.

5. These written findings and permit decision are based on information provided by Western (Amendment application AM4 and existing permit C1984003B), the Checklist Environmental Assessment completed by DEQ dated July 2015 and updated December 2015, and the Cumulative Hydrologic Impact Assessment (CHIA) completed by DEQ dated December 2015.

6. Table I - Introductory Table

Applicant	Western Energy Company
Name of Mine	Rosebud Coal Mine Area B
MSHA Number	24-01747
Type of Mine	Strip
Type of Application	Amendment
Area within existing permit boundary (acres)	6,182
Proposed Increase in Permit Area (Acres)	49
Total proposed permit area (acres)	6,231
Anticipated Annual Production	4 million tons

FINDINGS

7. Permit and Review Chronology

December 8, 1980	Surface Mine Permit C1984003B is issued.
June 11, 2009	Various permitting actions December 1980 to June 2009.
June 15, 2009	Application 00184 (AM4), Area B Permit Amendment is submitted to DEQ by Western Energy.
June 25, 2009	Western submits the revised Application Form for the Area B Permit Amendment.
August 7, 2009	DEQ determines that Application #00184 (AM4) is complete and that an environmental impact statement is not necessary.
August 21, 2009	DEQ sends out the notice of application.
September 22, 2009	DEC received the affidavit of publication from Western. The public notice was published on August 27, September 3rd, 10th and 17th, 2009.
December 22, 2009	DEQ sends first round technical comments to Western.
March 18, 2010	DEQ receives Western's response to the first round technical comments for Application 00184 (AM4).
June 1, 2010	DEQ sends the second round deficiency letter to Western.
July 16, 2010	DEQ receives the Area B-East; Hydrological Control Plan and

	Associated Ponds.
November 15, 2010	DEQ receives Western's second round deficiency response.
December 8, 2010	DEQ completes a search of the Applicant/Violator System.
January 6, 2011	DEQ requests the CAD versions of the revised exhibits from Western.
January 25, 2011	DEQ receives the CAD for the revised exhibits.
March 14, 2011	DEQ sent Western a third round deficiency letter for Application 00184 (AM4)
January 19, 2012	DEQ receives Western's third round technical deficiency response.
February 29, 2012	DEQ sends Western comments for the Area B PHC via e-mail.
April 4, 2012	DEQ sent Western a request to update the PHC for Rosebud Coal Mine Area B as it had been several years since it was completed.
April 27, 2012	DEQ received information from Western in response to a data request for the amendment.
May 16, 2012	DEQ sent Western a fourth round deficiency letter for Application 00184 (AM4)
March 25, 2013	DEQ received Western's fourth round deficiency response.
April 30, 2013	DEQ sent Western a digital data request to assist in completing the CHIA for amendment.
May 3, 2013	DEQ sent Western a letter detailing a phone conversation describing the requirements of a comprehensive PHC including Areas A, B, and C.
June 13, 2013	DEQ receives the data requested in April 30, 2013 request from Western.
June 16, 2013	DEQ receives the updated PHC from Western.
July 23, 2013	DEQ sent Western a fifth round acceptability deficiency.
November 1, 2013	DEQ receives Western's response to the fifth round

	acceptability deficiency.
January 15, 2014	DEQ sent Western a sixth round acceptability deficiency.
February 3, 2014	DEQ receives Western's response to the sixth round acceptability deficiency.
February 24, 2014	DEQ receives Table 15A for the Area ABC PHC from Western.
June 3, 2014	DEQ sent Western a seventh round acceptability deficiency.
February 2, 2015	DEQ received a response to the seventh round acceptability deficiency.
March 5, 2015	DEQ sent Western an eighth round acceptability deficiency.
March 10, 2015	DEQ received Western's response to the eighth round acceptability deficiency.
May 11, 2015	DEQ received a copy of the Modification of Area B Resource Recovery and Protection Plan (R2P2) for Logical Mining Unit MTM 83589 containing Federal Coal Leases MTM35734, MTM54711 and MTM073109.
June 10, 2015	DEQ received an updated acreage table from Western associated with the Area B permit.
July 8, 2015	DEQ sent Western an acceptability determination letter with a request to verify the acreage for the amendment.
July 8, 2015	DEQ received the acreage table as request in the acceptability determination letter.
July 8, 2015	DEQ sent a Notice of Acceptability to the interested parties as well as having it published in the Billings Gazette which was published on July 17, 2015.
July 8, 2015	DEQ completes and makes available to the public a DRAFT Checklist Environmental Assessment for AM4.
July 22, 2015	DEQ receives a public records request from Western Environmental Law Center
August 3, 2015	DEQ receives public comment from Western Environmental Law Center.

August 24, 2015	DEQ's decision due date is missed due to review of legal counsel requesting changes to the format of the Cumulative Hydrologic Impact Assessment (CHIA).

8. DEQ found that the Rosebud Area B Amendment original application, submitted on June 12, 2009, and revised through March 10, 2015, is complete and accurate, and the applicant has complied with Montana's permanent regulatory program. *See* Administrative Rule of Montana (ARM) 17.24.406(a).

9. The applicant has demonstrated that reclamation, as required by the Montana Strip and Underground Mine Reclamation Act and regulations, can be accomplished under the proposed reclamation plan (*see* ARM) 17.24.406(a).

10. The AM4 amendment area is not located:

a) within an area under study or administrative proceedings under a petition to be designated as unsuitable for strip or underground coal mining operations. *See* (82-4-227(9), MCA;
b) within an area designated unsuitable for strip or underground coal mining operations pursuant to 82-4-227(9), MCA;
c) on any lands within the boundaries of units of the national park system, the national wildlife refuge system, the national wilderness preservation system, the national system of trails, the wild and scenic rivers system, including study rivers designated under section 5(a) of the Wild and Scenic Rivers Act or study rivers or study river corridors established in any guidelines issued under that act, or national recreation areas designated by an act of congress, or on any federal lands within national forests, subject to the exceptions and limitations of 30 CFR 761.11(b) and the procedures of 30 CFR 761.13 (*see*, 82-4-227(13));
d) on any lands upon which mining would adversely impact any publicly owned park or place included in the National Register of Historic Places (*see* ARM 17.24.1131);
e) where the operation will constitute a hazard to a dwelling, public building, school, church, cemetery, commercial or institutional building, public road, stream, lake, or other public property (*see* 82-4-227(7), MCA) except as conditioned below;
f) within 300 feet of any occupied dwelling (*see* 82-4-227(7)(a), MCA);.
g) within 300 feet of any public building, church, school, community or institutional building, or public park ((*see* 82-4-227(7)(b), MCA);
h) within 100 feet of a cemetery (*see* 82-4-227(7)(c), MCA); or
i) within 100 feet of the outside right-of-way line of a public road (*see* 82-4-227(7)(d), MCA).

11. Western has obtained all surface and mineral rights to conduct mining and reclamation operations authorized under AM4.

12. DEQ has made an assessment of the cumulative hydrologic impacts of all anticipated coal mining on the hydrologic balance within the cumulative impact area. See Attachment 1 which is incorporated into these findings by reference. In that

assessment, DEQ has determined that this amendment will not result in material damage to the hydrologic balance outside the permit area.

13. Western has paid all reclamation fees from previous and existing operations as required by 30 CFR Chapter VII, Subchapter R, as verified through the Applicant Violator System (AVS check of 11/25/15).

14. The proposed amendment is not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (*see* ARM 17.24.751)(*see* letter of 11/13/01 from USFWS).

15. Western has obtained all required air quality and water quality permits (*see* 82-4-231(2), MCA).

16. There are no pending MSUMRA violations for Western at the Rosebud Coal Mine Area B. No other strip- or underground-coal-mining operation that is owned or controlled by the applicant or by any person who owns or controls the applicant is currently in violation of Public Law 95-87, as amended, any state law required by Public Law 95-87, as amended, or any law, rule, or regulation of the United States or of any department or agency in the United States pertaining to air or water environmental protection, the department may not issue a strip- or underground-coal-mining permit or amendment, other than an incidental boundary revision, until the applicant submits proof that the violation has been corrected or is in the process of being corrected to the satisfaction of the administering agency (82-4-227(11), MCA) (AVS check of 11/25/15).

17. Records of DEQ and OSMRE show that the applicant does not own or control any strip- or underground-coal-mining operation that has demonstrated a pattern of willful violations of Public Law 95-87, as amended, or any state law required by Public Law 95-87, as amended, when the nature and duration of the violations and resulting irreparable damage to the environment indicate an intent not to comply with the provisions of the Montana Strip and Underground Mine Reclamation Act (82-4-227(12), MCA) (AVS check of 11/25/15).

18. Western is in compliance with all applicable federal and state cultural resource requirements, including ARM 17.24.318, 1131 and 1137, and as explained in the conditions listed below.

19. The current bond for the Rosebud Area B permit is $48,403,696. The bond was recalculated as part of the permit renewal application submitted on April 8, 2015. DEQ determined that a bond in the amount of $73,650,000 would be required for both the renewal and AM4 to account for current practices and future conditions. DEQ received adequate bond on December 3, 2015.

PRIVATE PROPERTY TAKINGS

23. The 1995 Montana state legislature passed House Bill (HB) 311, which requires a state agency to prepare an assessment of whether a proposed agency action will result in a taking of private property. DEQ prepared the assessment which concludes that the action approval of AM4 does not result in the taking of private property. The Private Property Takings Assessment is attached to these Written Findings as Attachment 4.

DECISION

20. Based on the information found in Western's Amendment Application 4 and these findings, DEQ hereby approves Amendment Application 04 as revised through March 10, 2015, and DEQ grants the amendment subject to the following conditions:

21. 17.24. 318, 1131[1]: Treatment of cultural resources within SMP C1984003B and the amendment area is covered by a MOA developed under the provisions of Section 106 of the National Historic Preservation Act and pursuant regulations (36 CFR 800). Treatment of all cultural resources, including incidental discoveries during the course of mining, must be handled according to the provisions of this MOA.

22. 17.24.304(1)(e); 17.24.417(1): The stream bottom of all named drainages must be surveyed in a manner acceptable to DEQ. The data must be submitted by the operator via a minor revision for incorporation into the permit by June 30, 2016.

23. 17.24.645(3); 17.24.646(1): Groundwater monitoring must be expanded in order to adequately determine the potential effects of mining to the hydrologic balance outside the permit area. Additional monitoring wells will be required to monitor potential down gradient movement of the affected water to ensure that it does not leave the permit boundary. Additional monitoring wells are also required inside the south permit boundary of Area B to monitor the quality of spoil water once the backfill becomes saturated and follows the natural flow direction to the southeast. This must be accomplished via a minor revision to the MQAP that is approvable by DEQ. The minor revision must be submitted to DEQ for review within 90 days of permit issuance.

24. 17.24.646(1) and (3): Surface water monitoring must be expanded at all streams downstream of mining in order to adequately determine the effects on mining on the hydrologic balance inside and outside the permit area. This must be accomplished via a minor revision to the MQAP that is approvable by DEQ. The minor revision must be submitted to DEQ for review within 90 days of permit issuance.

[1] The number preceding each permit condition is a reference to the provisions of the permit that is the subject of the condition.

257. 17.24.723(1) and (2): Macroinvertebrate monitoring on all intermittent reaches of all streams affected by mining must be performed on a schedule approved by the DEQ (every five years to be submitted with renewal). The proposed monitoring plan must be submitted to DEQ via a minor revision for incorporation into the wildlife monitoring plan.

RESPONSES TO PUBLIC COMMENTS

1. Western Energy is ineligible for a permit because of current violations of environmental laws at the Absaloka Mine.

DEQ Response: See AVS discussion at Written Finding nos. 16 and 17.

2. Western Energy is ineligible for a permit because of current violation of environmental laws at the Rosebud Mine.

DEQ Response: See AVS discussion at Written Finding nos. 16 and 17.

3. According to DEQ's 2014 Final Water Quality Integrated Report, the principal stream impacted by the strip-mining operation, East Fork Armells Creek, is currently not meeting water quality standards…DEQ has determined that the upper portion of the creek is not meeting water quality standards due to "alteration in stream-side or littoral vegetative covers," caused by "surface mining."

DEQ Response: DEQ's Waterbody Assessment Record for East Fork Armells Creek (MT42K002_170.pdf) was conducted in 2006, and no substantive updates have been conducted since this initial assessment. The Assessment Record identifies 'aquatic life' as an unsupported use, with the cause being 'alteration in stream-side or littoral vegetative covers' resultant from surface mining.

Regarding habitat impairments identified in the Assessment Record, the record states that:

a) Grazing is occurring throughout the reach with little impact. The riparian vegetation is mostly grasses and shrubs. Trees are generally missing, but are not required for sustainability.

b) Mining activity has, at a minimum, moderately impaired the habitat in this segment.

c) Because the habitat is impaired, aquatic life is partially supporting, despite the fact the stream is ephemeral.

The Assessment Record makes the claim that 'because the habitat is impaired, aquatic life is partially supporting'. In 2014, Western Energy Company, under the direction of the DEQ, conducted an aquatic survey with the objective of evaluating aquatic life support in upper

EFAC (waterbody segment MT42K002_170). The results of this survey show that the aquatic environments in upper EFAC support a diverse assemblage of aquatic insects, and consist of taxa commonly found in eastern Montana prairie streams. The recent aquatic survey provides empirical evidence that Aquatic Life support is not adversely impacted by mining activity.

4. DEQ has also determined that the lower portion of East Fork Armells Creek is not meeting water quality standards for Nitrate/Nitrite, nitrogen, specific conductance (SC), and total dissolved solids (TDS) and that the cause of these violations of water quality standards includes "coal mining."

DEQ Response: The lower portion of EFAC receives nitrogen-rich effluent from numerous sources including: runoff from the town of Colstrip, the water treatment plant, infiltration and runoff from the golf course (with fertilized and irrigated greens), agriculture, and grazing. The relative contribution from "surface mining" can be evaluated by examining water quality analyses from surface water and alluvial groundwater. Exceedances for nitrate-nitrite nitrogen are discussed in the CHIA (Attachment 1) in Section 9.2.4.4.4 and Section 9.2.6.10. Examination of the Table 9-7 and Table 9-8 in the CHIA (Attachment 1) indicates that the exceedance of nitrate-nitrite nitrogen is uncommon.

The sources listed above as contributors of nitrate-nitrite nitrogen along with leaking power plant ponds, also contribute to SC and TDS in the downstream section of EFAC. Water quality samples taken from EFAC surface and alluvial groundwater below the Highway 39 bridge and the town of Colstrip typically report much higher SC and TDS concentration (as well as nitrate-nitrite) than samples taken upstream of the bridge. Please refer to water quality data in the comprehensive Rosebud Mine database that was previously requested by and submitted to MEIC. The Colstrip power plant also has sampled EFAC south of the Highway 39 bridge and has regularly submitted stream water quality data to the DEQ that is available to the public for review and compare with data from the mine.

5. Indeed, WECo acknowledges that an upper section of the creek in Section 15 was intermittent in 1986 and that recent surveys indicate that it is now dry.[4] "Given the decreased water levels in alluvial wells between Areas B and C, it is possible that the change in flow is a result of mine related dewatering."[5]

DEQ Response: It is unknown whether there was baseflow in the stream section in question, and the premine quantity of water is also unknown. Statements as to the nature of this section premine are anecdotal. Since the nature of this section was not well documented in the 1970's, material damage to this section cannot be determined. While macroinvertebrates were documented using the water in Section 15 in the 1970s, it is unknown if water was present every year or only after wet years when runoff accumulated behind the instream dam, or only after years where the alluvium was saturated to the point of baseflow. Without knowing the true nature of the stream flow and the interaction between groundwater and surface water, a determination of material damage cannot be

made. Refer to page 9-22, 23 of the CHIA (Attachment 1) for a full discussion of the section 15 reach of EFAC.

6. WECo is clearly responsible for all violations of water quality standards in the upper reach of East Fork Armells Creek.

DEQ Response: Please refer to the response to Comment 1, above.

7. WECo also identifies ammonium-nitrate explosives from blasting as a contributor to elevated nitrate plus nitrite nitrogen levels in the East Fork Armells Creek alluvium.

DEQ Response: See the above discussion regarding nitrate-nitrite nitrogen; please refer to the CHIA (Attachment 1) in Section 9.2.6.4 and Section 9.2.8.9. Examination of the Table 9-7 and Table 9-8 in the CHIA (Attachment 1) indicates that the exceedance of nitrate-nitrite nitrogen is uncommon.

8. With respect to groundwater, the PHC recognizes that TDS levels in the spoils will be "two to three times that of the baseline coal groundwater."[10] WECo acknowledges that this will likely result in deterioration of groundwater quality within some areas of the mine backfill to a degree that will require at least temporary reclassification of the groundwater to a lower usage class."

DEQ Response: The comment is mistaken to the extent that it applies the material damage requirement to hydrologic consequences of mining within the permit area. Within the permit area, the Act requires the operator to minimize disturbance to the hydrologic balance. A reduction of water quality in the mining area is expected and is not grounds for denial of a mine permit application as long as reasonable conservation practices are being applied.

9. Further, neither the PHC nor DEQ's draft checklist EA addresses the best science about sulfate impacts to livestock. The PHC states that the sulfate standard for livestock is between 2500 and 3000 mg/L. However, the most recent science shows that sulfate concentrations as low as 1,000 mg/L are harmful to cattle:…

DEQ Response: There is a lack of consensus in the scientific and agricultural communities on the appropriate or acceptable concentrations for livestock drinking water quality. Desirable concentrations or limits on concentrations for livestock generally reflect the regional water quality in combination with feed and exposure, or lack of exposure, to trace elements during foraging. This is especially true for water quality constituents with narrative standards, such as sulfate. The document referenced by WELC as representing the "most recent science" [M.F. Raisbeck, et al. (2008)] has no greater scientific value than the other published water quality criteria for livestock. Indeed, some of the references listed in the document show that livestock growth appeared not to be significantly affected

at higher sulfate concentrations than ones proposed as harmful by the document and WELC.

10. The PHC demonstrates that the strip mine will cause and contribute to ongoing material damage to surface water…The PHC confirms that due to continued operation of the mine, TDS and nitrate/nitrite concentrations will increase in the alluvium of East Fork Armells Creek. PHC Addendum ("Once those water levels fully recover, it is estimated that the increase in TDS in the alluvium will be about 13 percent when compared to baseline conditions."); ("Nitrate plus nitrite nitrogen exceedances were found mostly in alluvium along the EFA and spoils wells…)"

DEQ Response: DEQ does not agree that there is ongoing material damage to surface water in EFAC or that the anticipated increase in TDS concentration in EFAC will create material damage. The standard for determination of material damage is deterioration of the quality or quantity of water outside the permit area to an extent that land uses or beneficial uses are adversely affected or water quality standards are violated. The predicted increase in TDS from mining does not anticipate violation of numeric standards or decline in water quality so that listed beneficial uses as defined by narrative standards are adversely affected. For the most sensitive use of EFAC water, aquatic life, there is no scientific evidence that the 13% increase in TDS will adversely affect macroinvertebrates in EFAC. DEQ will require the operator to monitor aquatic life to determine whether mining activity is materially detrimental to aquatic life in EFAC.

Also, an increase in TDS does not equate with an increase in nitrate-nitrite nitrogen. In their letter, WELC exaggerates the prevalence or extent of nitrate-nitrite nitrogen associated with mining. As discussed in Section 9.2.4.4.4 and Section 9.2.6.10 of the CHIA (Attachment 1), the occurrence of nitrate-nitrite nitrogen that can be clearly associated with mining is relatively rare.

11. Further, WECo's attempts to shirk its responsibility for increased TDS concentrations in alluvial waters are not believable. First, WECo inflates baseline TDS levels in East Fork Armells Creek to 2,299 mg/L.[20] However, the only samples that unquestionably predate mining at Colstrip, which were taken by the U.S. Geological Survey in 1923, had TDS concentrations of 845 and 688. Further, the last time that DEQ appears to have considered the cause of increased TDS concentrations on water quality in East Fork Armells Creek, the agency stated that the baseline average was 2,200 mg/L.

DEQ Response: With the exception of the easternmost part of Area A and Area B where mining was active in the early to mid-1970's, there are numerous monitoring sites with multiple sample analyses that represent premine, baseline conditions in EFAC alluvium. Two water quality samples from a system as dynamic as EFAC alluvium are not an adequate representation of premine baseline. The two samples that WELC refers to "that unquestionably predate mining" were not taken from alluvial water. WELC gleaned the data from MBMG Open-File Report 640 (hereinafter OFR 640), clearly titled Spring and

Stream Water Quality, Powder River Basin, Montana, which did not include alluvial samples. Further, if one examines the 1929 USGS source document (Water Supply Paper 600, hereinafter WSP 600) in which the samples listed in OFR 640 were originally reported, it becomes apparent that the sample location, source, and concentration reported for these samples in OFR 640 are not accurate. The PLSS in the OFR 640 for GWIC ID 201 places the sample more than a mile north of EFAC. WSP 600 indicates that this sample (USGS analysis 122) was collected from a 40 foot deep coal shaft and had a TDS of 1,102 mg/L (p. 138), not 845 mg/L. The sample identified as GWIC ID 309 (USGS analysis 123) was reported in WSP 600 as collected from a "water hole 6 feet deep" in EFAC and had a TDS of 962 mg/L (p. 138), not 688 mg/L.

Please be advised that a difference of 99 mg/L from two baseline averages determined by two different investigators using multiple water quality analyses from numerous wells is not significant and should not warrant concern regarding inconsistency or accuracy.

12. In addition to inflating baseline concentrations, WECo's suggestion that the measured increase in TDS upstream of Colstrip is due to "natural" factors is not credible.[23] First, the increase in alluvial TDS levels is not a recent development but has been documented since the 1990s.[24] DEQ attributed this increase in TDS to mining activity… The only citation that WECo offers for its theory that the increased TDS levels in the alluvium are "natural" is to an "email communication," with no additional explanation.[26]

DEQ Response: WELC refers to a DEQ document (letter to OSM, 1998) as evidence that the increase in TDS is due to mining. The author of the letter (D. Erbes) assumes the increase in TDS is the result of impoundment of surface flow in "upslope ponds". At of the date of these Written Findings, 17 years after the letter was written, subsequent data and more extensive and detailed investigation regarding increasing TDS leads to a different understanding of the source. This is described in detail in the PHC Addendum (Western Energy Company, 2015), a copy of which was obtained by MEIC in a recent information request.

13. The PHC, like DEQ's draft checklist EA, suffers from such generalized vagueness as to be devoid of any informational value to any save industry and agency insiders. For example, the PHC states that TDS concentrations will increase in spoils groundwater "during initial saturation and then decrease to an equilibrium level after one or more pore volumes of water pass through the backfill." There is no indication, however, about the length of time required for multiple "pore volumes" of water to pass through the backfill. … Regarding groundwater quantity, the PHC merely states that "full recovery" "will exceed 50 years in most portions that are mined" and that "[a]lthough it could take considerable time, there is no reason to expect that the regional groundwater flow gradient will not eventually recover because recharge and discharge areas for the principal aquifer will not be affected by mining."

DEQ Response: The comment addresses a lack of specificity in the time horizons for recovery of water quality and water levels that have undergone change due to coal mining. The simple answer is that the response of natural systems cannot be predicted with the exactness desired by WELC. A basic understanding of the hydrogeologic system, determined largely by field measurements, is used to anticipate the response to and recovery from disturbance to the system. Natural systems are dynamic, characterized by spaciotemporal variability and do not lend themselves to precision, especially when considering large areas and long time frames. Recovery of water levels and water quality will depend on the response of local hydrology, climate, chemical reactions, geology, all of which individually and in concert are unpredictable and play a part in the outcome. Awareness of this situation is reflected by statute and rules that require that the probable hydrologic consequences, rather than the exact hydrologic consequences, of mining be determined. Recovery of the hydrologic system will not be linear. Modeling the recovery of a system for the first 50 years gives a prediction of how the system will respond and may be used to extrapolate to a longer time frame, but given the limitations of the variables used in a model, especially for a large and complex area, estimates for time periods beyond fifty years become less reliable and less meaningful.

The DEQ endeavors to anticipate to the extent possible the impacts and outcomes of coal mining, and where more sensitive environmental settings are observed, increased examination is undertaken.

14. In addition to the unlawful vagueness and inconsistency with respect to the time horizons for impacts, the PHC is insufficient because it fails to address the impacts that climate change will have on the hydrologic balance.

DEQ Response: Specific weather changes in a localized area such as Colstrip that may occur over an undetermined period of time as a result of climate change are unknown, and cannot be realistically considered in the probable hydrologic consequences of mining.

15. DEQ's MEPA analysis is insufficient.

DEQ Response: For its response to this comment, DEQ incorporates by reference Environmental Assessment of Application AM4, December 3, 2015.

16. Approval of the proposed mine expansion violates the right to a clean and healthful environment.

DEQ Response: DEQ acknowledges that the Montana Constitution provides a right to clean and healthful environment. Among the inalienable rights declared in the Article II, Section 3 of Montana Constitution is the right to "a clean and healthful environment." The Legislature declared its intent that by enacting the Montana Strip and Underground Mine Reclamation Act ("MSUMRA") it was:

> [M]indful of its constitutional obligations under Article II, section 3, and Article IX of the Montana constitution, has enacted The Montana Strip and Underground Mine Reclamation Act. It is the legislature's intent that the requirements of this part provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources.

Section 82-4-202 (1), MCA. Nevertheless, MSUMRA in pertinent part sets forth the standards and criteria for evaluating whether a proposed coal mine operation protects those constitutional rights. MSUMRA authorizes strip and underground coal mining operations within the state in accordance with its provisions and requirements. The Legislature has authorized DEQ to permit and regulate surface and underground coal mining operations in accordance with MSUMRA and other environmental laws applicable to coal mining operations. By issuing a permit that complies with the requirements of MSUMRA, the Department acts consistently with the declared intent of the Legislature to protect the right of Montanans to a clean and healthy environment.

No provision of MSUMRA authorizes the Department to deny an application to amend a coal mine operating permit based on potential impacts to climate change. To the extent that the comment questions whether MSUMRA in whole or in part is consistent the Montana Constitution or international law, DEQ as a state agency "must faithfully execute the laws of Montana" and questions touching on the constitutionality of MSUMRA lie within the exclusive jurisdiction of the Montana courts. *See Merlin Meyers Revocable Trust v. Yellowstone County*, 2002 MT 201, ¶ 21, 311 Mont. 194, 200, 53 P.3d 1268, 1272.

REFERENCES CITED

Environmental Assessment of Application AM4 (MDEQ, July 2015 updated August 2015)

Western Energy Company Rosebud Coal Mine Area B Surface Mining Permit (SMP C1984003B)