Northern Plains Resource Council

On behalf of Northern Plains Resource Council (Northern Plains) and its members, I am submitting the following comments to the Montana Department of Environmental Quality (DEQ) in response to the October 5, 2018, Acceptability Determination on Western Energy’s proposed permit expansion into Area F at the existing Rosebud Mine (C2011003F), which surrounds the town of Colstrip, Montana.

Northern Plains is a grassroots conservation and family agriculture non-profit organization based in Billings, Montana. Northern Plains organizes Montana citizens to protect our water quality, family farms and ranches, and unique quality of life. Northern Plains is dedicated to providing the information and tools necessary to give citizens an effective voice in decisions that affect their lives.

Northern Plains formed in 1972 over the issue of coal strip mining and its impacts on private surface owners who own the land over federal and state mineral reserves as well as the environmental and social impacts of mining and transporting coal. We have many members who live and own ranches in the Colstrip area. Those members' livelihoods depend entirely on clean air and water, native soils and vegetation, and lands that remain intact.

In particular, we are concerned that the proposed Area F expansion would not only disrupt and impact the land’s surface but would also adversely affect surface and groundwater resources by expanding the mine into a new drainage that is hydrologically distinct from the current mined land. Numerous water rights holders would be affected by this proposed expansion.

The CHIA, Section 9, describes the expected impacts to surface and groundwater resources from Area F mining, including impacts on water rights holders. No adverse effects on land uses or beneficial uses of water or impacts to water rights outside the permit area are anticipated.

A negative impact to an existing surface or groundwater water right outside the permit boundary would constitute material damage (82-4-203, MCA and ARM 17.24.301(68)) and could not be lawfully authorized under MSUMRA. A mining permit may not be issued until an assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance has been conducted and findings indicate the operation has been designed to prevent material damage (82-4-227(3)(a)), MCA, which is defined to include degradation or reduction by coal mining and reclamation operations of the quality or quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. 82-4-203(32), MCA. The Area F CHIA assessed the probable cumulative impact of all anticipated mining in the area on the hydrologic balance and sufficiently determined in writing and upon affirmative record evidence that the proposed Area F mining operation, as approved, is designed to prevent material damage to the hydrologic balance outside the permit area. Section 82-2-227(3)(a), MCA; ARM 17.24.405(6)(c); In re Signal Peak Energy (Bull Mountain Mine No. 1), BER-2-13-07-SM, Findings of Fact, Conclusions of Law and Order (Jan. 14, 2016) at 56.

ARM 17.24.314 of the Area F permit application describes the plan for protection of the hydrologic balance. The plan includes minimization and mitigation measures designed to protect the hydrologic balance and achieve the postmining land use (Area F CHIA Section 9.6.10, p. 79).

As required by ARM 17.24.648, Western Energy is required to provide replacement water.
Section 82-4-222(1)(m), MCA, requires the applicant to submit a determination of the Probable Hydrologic Consequences (PHC) which includes findings on whether the proposed mining may proximately result in the diminution or interruption of a water supply that is used for domestic, agricultural, industrial, or other beneficial use. Section 82-4-222(1)(n), MCA further requires an applicant to provide a plan for monitoring the availability and suitability of both ground and surface waters for current and approved postmining land uses. ARM 17.24.304 requires that an application for a coal mining permit include (among other things): a description of alternative water supplies, not to be disturbed by mining, that could be developed to replace water supplies diminished or otherwise adversely impacted in quality or quantity by mining activities so as not to be suitable for the approved postmining land uses. ARM 17.24.304(1)(f)(iii). ARM 17.24.648 (part of MSUMRA) requires that Western Energy replace the water supply of any owner of interest in real property who obtains all or part of his water supply for domestic, agricultural, or other uses from surface or ground water if such supply has been affected by contamination, diminution, or interruption proximately resulting from mine operations. The specific steps for water supply replacement are laid out in 82-4-253(3)(d), MCA, which requires in pertinent part that an operator shall be ordered (in compliance with MCA Ch. 2, Tit. 85) to replace lost water supplies on both an interim (to supply needed water) and a permanent basis with a supply of water in like quantity, quality, and duration. The probable source for replacement water is from the Sub-McKay aquifer. The water from the Sub-McKay is comparable to that of the Rosebud.

Additionally, Northern Plains and its members have long focused on ensuring that appropriate and adequate reclamation – as promised by the Surface Mining Control and Reclamation Act (SMCRA) – is fully completed. We are particularly concerned about the reclamation (or lack thereof) at the Rosebud Mine.

See response to NPRC-11.

Finally, as our comments will explain, Western Energy’s parent company, Westmoreland Coal Company, filed for bankruptcy protection on October 9, 2018. We are concerned that DEQ’s move to approve a 6,700-acre permit expansion while the parent company is in bankruptcy introduces unnecessary risk. Insofar as DEQ literally cannot know which company will ultimately own Western Energy before the auction of assets (as contemplated by the company’s bankruptcy filings) or the financial solvency of that entity, it is of the utmost importance that the DEQ wait until Westmoreland Coal Company is out of bankruptcy before approving this permit application.

DEQ would run the risk of violating federal law if it were to delay a decision on the Area F permit application solely because Westmoreland is in bankruptcy. The Westmoreland bankruptcy is presently pending before the United States Bankruptcy Court for the Southern District of Texas (Judge David R. Jones, presiding). In an October 9, 2018 Order Restating and Enforcing the Worldwide Automatic Stay, Anti-Discrimination Provisions and Ipso Facto Protections of the Bankruptcy Code, Judge Jones reiterated and reinforced the anti-discrimination provisions of the Bankruptcy Code:

Pursuant to section 525 of the Bankruptcy Code, all governmental units and other regulatory authorities are prohibited and enjoined from: (a) denying, revoking, suspending, or refusing to renew any license, permit, charter, franchise, or other similar grant to the Debtors; (b) placing conditions upon such a grant to the Debtors; or (c) discriminating against the Debtors with respect to such a grant, solely because the Debtors are debtors under the Bankruptcy Code, may have been insolvent before the commencement of these chapter 11 cases, or are insolvent during the pendency of these chapter 11 cases. Id. at ¶ 4.

MSUMRA provides for successor operators to assume all permit obligations. § 82-4-238, MCA; ARM 17.24.418. In order to be permitted to operate, a successor operator must comply with the requirements of MSUMRA, which includes bonding requirements. § 82-4-223, MCA. MSUMRA further provides for contract operators to conducting mining provided that they
## Water Resources

**NPRC-5** Water is a precious resource in this semi-arid region of the state. Ranchers and other residents who live in this area rely on surface waters for irrigation and agricultural production. Shallow aquifers provide water for domestic and livestock use as well as sub-irrigate the agricultural land. Those who live farther from surface water sources rely principally on groundwater wells for their water. Currently there are many maintenance-free springs and seeps in the area that are used by both wildlife and livestock. The water quality of the region is critical to the agricultural health and the operation and survival of area ranches. In the arid western United States, good quality water is a scarce commodity. Poor quality water can rob producers via decreased performance (growth, reproduction) and has resulted in acute illness and death in livestock (and wildlife).

DEQ agrees that water is an important resource for natural and human uses, including agriculture, in terms of quality and quantity. In preparation of the Cumulative Hydrologic Impact Assessment, DEQ reviewed baseline water quality and quantity data, beneficial and existing uses including water rights, and identified anticipated hydrologic consequences to water resources.

While some agricultural users utilize shallow groundwater, most groundwater use is from the geologic units below the McKay Coal, known as the underburden (See CHIA Table 8-3). Surface and spring users (water rights) are included in CHIA Tables 8-1 and 8-2, respectively. Baseline water quality in the area is summarized in CHIA Table 7-1 for surface water sources (stream by drainage, pond, and springs), Table 7-4 summarizes alluvial water quality, and Table 7-9 summarizes underburden water quality. If there is an impact identified to a user, it will be mitigated as required by ARM 17.24.648.

**NPRC-6** Strip mining would alter stream-flow patterns and affect spring flows. Pit inflows would be discharged into the drainages in the area, degrading their water quality. The connectivity of the surface water with groundwater would be disrupted and compromised. Additionally, soils surrounding coal seams and the underground aquifers in coal seams are highly laden with sodium salts. Improper discharge of these sediments and waters will impact the surface water quality.

Impacts of mining on stream and spring flows are discussed in the CHIA, Section 9.5. All discharges from the mine will be controlled by the mine’s MPDES permit, which will require compliance with Montana’s water quality standards and non-degradation regulations. No discharges which degrade water quality would be permitted. During mining, connections between groundwater and surface water will be interrupted within the mine permit boundary. As described in the CHIA, Sections 9.5 and 9.6, these impacts are expected to be minor outside the permit boundary.

**NPRC-7** The construction activity necessary to expand the coal strip mine has the potential, despite proposed control measures, to add sediments to the surface waters of the area. How these surface water resources would be reclaimed to like or better water quality conditions following strip mining remains unclear to us.

Erosion, sediment transport, and deposition are components of sedimentation, which is a process of geomorphic change inherently tied to surface hydrology. Pre-mine sediment yield, or an average rate of sediment movement in a defined area, was modeled for permitting and reclamation requirements. ARM 17.24.638(1) requires the application and maintenance of best technology currently available (BTCA) to:

(a) Prevent, to the extent possible, additional contributions of sediment to streamflow or to runoff outside the permit area;

(b) Meet the more stringent of applicable state or federal effluent limitations; and

(c) Minimize erosion to the extent possible.

All discharges resulting from mining operations associated with Area F will be subject to these requirements, and each point of discharge will be regulated as an MPDES outfall. MPDES effluent limits will be water quality-based or technology-based. Numeric standards for sodium are not included in Circular DEQ-7 (2017), and receiving waters for Area F are not included in applicable waters with numeric standards for electrical conductivity (EC) and sodium adsorption ratio (SAR), see ARM 17.30.670. Consequently, there are no water quality based effluent limits for sodium. Technology-based effluent limitations for sediment come from Title 40, Code of Federal Regulations 434.45, which addresses new source performance standards in alkaline mine drainage. 40 CFR 434.45 requires total suspended solids (TSS)
achievement of 35.0 mg/L in 30-day (consecutive) averages, and 70.0 mg/L maximum values for any single day. 40 CFR 434.63 applies to technology-based effluent limitations in precipitation-driven discharges, including 0.5 mL/L for settleable solids in events less than the 10-year, 24-hour precipitation event, and no effluent limitation is assigned to precipitation events which exceed that threshold. During mining, discharges to receiving surface waters are regulated below pre-mine sediment transport levels. As reclamation proceeds, sediment control features shift to post-mine controls including establishment of approved vegetation. The post-mine landscape is designed around, and is regulated by an approved sediment control plan, which required by ARM 17.24.638 and 40 CFR 434.82 to prevent an increase in the average annual sediment yield from pre-mined, undisturbed conditions. Section 9.5 of the CHIA is a hydrologic impact and material damage assessment for surface waters the cumulative hydrologic impact area (CIA).

There are 53 springs documented in the project area, of which 14 have been monitored. Springs are important sources of water for livestock (as well as wildlife) and require no electricity for pumping, thus, are a valued resource by ranchers. These springs also provide runoff for intermittent and ephemeral streams and pools that support riparian vegetation, which is important if not critical habitat for numerous wildlife species, including amphibians, migratory birds, and a diversity of aquatic life forms especially adapted to these environments. The monitored spring flows range from seepage to as high as 9 gallons/minute. The water quality of these springs is generally good, with those located in the higher portions of the watershed having high quality water. These springs would be adversely impacted by this project (as described below), and, thus, forever lost as a water resource to the ranchers and wildlife in the area.

The 53 springs near Area F listed in the permit application are compiled from several sources to ensure all potential springs are cataloged. Some of these sources may contain records of historic springs which no longer flow, or which may rarely flow. There also may be incomplete or incorrect location information for springs contained in these sources, which makes it difficult or impossible to locate a specific spring in the field. WECO identified springs near Area F for monitoring based on field surveys conducted by WECO’s staff and consultants. DEQ verified these surveys using aerial photographs and field visits and suggested additional spring monitoring locations during the application process, which WECO then added to its monitoring schedule. As such DEQ is confident that WECO’s baseline monitoring included all springs which routinely have flow and may discharge into or receive flows from the Area F permit area as required by ARM 17.24.304(1)(f).

DEQ agrees that many of these springs are important water sources for wildlife and livestock. The CHIA describes the premine conditions at springs in Section 7.1, and the water users and uses of springs in Section 8. As described in the CHIA, water quality at springs is highly variable, with some springs producing water with low total dissolved solids (TDS) and some water with high TDS. “High quality water” is a legal term with a specific definition in 7-5-103(13), MCA. Determining if a spring produces “high quality water” depends on the manner in which the spring is used and the quality of the water from the spring. Developed springs, where groundwater is captured in a pit, culvert, spring box, tank, or containment, receive a groundwater right and the groundwater definition of “High quality Water” applies. For groundwater, “High quality waters” are all Class I and Class II waters, i.e. all water with a natural specific conductance less than or equal to 2,500 microSiemens per centimeter. Undeveloped springs, where the water seeps or flows into a natural channel, receive a surface water right and the surface water definition of “High quality waters” applies. For surface water, “High quality waters” flow for greater than 95 days per year and support the designated uses for their classification.

Impacts of mining on springs in and around Area F are described in the CHIA in Section 9.5. As described in the CHIA, some springs located within and immediately adjacent to the area to be mined will be impacted by mining. Springs upgradient of mining are unlikely to be
Coal seams are filled with water and function as vital aquifers in this region. Coal strip mines sever and destroy these aquifers. The impacts of this severance can be seen many miles from the mine. Not only do down-gradient wells and springs dry up when the aquifer is severed, but springs and seeps above the mine that are hydrologically tied to the coal-seam aquifers will be drained and will dry up. The draft Environmental Impact Statement (DEIS) for Area F states (page S-26) that "[m]ining of the project area would permanently remove the Rosebud Coal aquifer and result in long-term reduction or elimination of the bedrock ground water contribution to the baseflow in the perennial and intermittent reaches of the major tributaries."

While coal seams are often saturated and can be a source of groundwater to wells, the low permeability of the coal seams limits the productivity of wells completed only in the coal. Because of this, most wells used for domestic or stock water are completed in thicker more permeable sandstone units in the underburden. See CHIA Table 8-3. In the decades of mining which have occurred, DEQ is unaware of any downgradient or upgradient wells or springs outside the permit area of the Rosebud Mine which have dried up as a result of mining. The contribution of groundwater from the disturbed bedrock units to support baseflow in streams is minor. As described in the CHIA, Section 9.6.3, the maximum reduction in flow of bedrock groundwater to alluvial groundwater at the end of mining is approximately 50 gpm divided between the five drainages in Area F. Intermittent reaches of the major tributaries which may be affected by decreases in baseflow are all located within the Area F permit boundary. Because spoil has similar hydraulic properties to coal and overburden (CHIA Section 9.6.2), when water levels recover after mining bedrock groundwater flow into alluvial groundwater is expected to be similar to premining flow.

Given the failure of existing western mining operations to restore coal-seam aquifers disturbed by mining, and the failure of most Montana mines to restore water supplies sufficient to gain Phase IV bond release, this, to us, is an unacceptable situation.

Under SMCRA, contemporaneous reclamation is supposed to occur at coal strip mines. The purpose of SMCRA is to ensure restoration of the land and hydrology to pre-mine conditions. Under REG-8, OSMRE oversight guidance document, analysis of "reclamation success as measured by bond release" is required. In Montana there are four phases of bond release, with each phase building upon the preceding, successfully completed phase. Final bond release occurs when the permittee has not only successfully established plant communities suitable to the region’s climate and post-mining land use on the mine-disturbed lands (Phase III bond release requirements) but has also reclaimed the hydrologic balance within any impacted and will remain in their premining condition and support their premining uses. Likely impacts to springs range from minor changes in flow and/or quality to complete removal of the spring (for springs within the mine disturbance area). After mining, removed springs may or may not reestablish in a similar location. WECo has committed in their permit to maintain and restore the postmining land use to cattle grazing and wildlife use. Cattle and wildlife uses are supported after mining by installing stockwater wells in reclaimed areas after mining, opportunistically retaining mine sediment ponds which hold water suitable for the uses, and implementing the wetlands mitigation plan in Permit Appendix N. WECo has successfully facilitated cattle grazing on existing reclaimed areas of the Rosebud Mine for many years, and wildlife of many types are frequently observed utilizing reclaimed areas of the Rosebud Mine by WECo’s wildlife monitoring and by DEQ inspectors.

After mining, replacement of the coal and overburden with spoil reconnects upgradient groundwater with downgradient groundwater. Aquifer testing has demonstrated that spoil has similar hydraulic properties to the overburden and coal (CHIA, Section 9.6.2). To date, no Phase IV bond release application has been delayed due to failure to restore water supplies. Phase IV bond release is generally not achievable until the end of all mining in an area due to the requirement that “all disturbed lands within any designated drainage basin have been reclaimed” ARM 17.24.1116(6)(d)(i). See response to NPRC-15 for additional information on reclamation and bond release.

A June 6, 2018 letter from OSMRE responded to an April 2, 2018 WildEarth Guardians (WEG) complaint alleging that Rosebud Mine and other Montana coal mines were failing to meet their reclamation obligations based upon what WEG alleged to be a failure to conduct contemporaneous reclamation and achieve final bond release. DEQ, in a letter to OSMRE dated April 30, 2018 rejected the allegations in WEG’s complaint, and OSMRE’s June 6, 2018 response to WEG concurred with DEQ and likewise rejected WEG’s allegations. As OSMRE’s June 6 letter in pertinent part explained:

Reclamation
designated drainage basin. Bond release is the only lawful and objective measure to evaluate reclamation success. Without bond release, especially final bond release, there is no proof of successful mine reclamation.

(i) The applicable statutory and regulatory framework does not contemplate instant reclamation or reclamation on an acre-by-acre basis as surface mining proceeds, but instead contemplates that reclamation is supposed to occur “as contemporaneous as practicable.” OSMRE Response at 6-7, citing WildEarth Guardians v. Salazar, 880 F. Supp. 2d 77, 91, n. 10 (D.D.C. 2012); see also Sections 82-4-231, 82-4-234 and 82-4-336(2), MCA; ARM 17.24.115;
(ii) An operator’s success at contemporaneous reclamation is primarily measured by the operator’s compliance with its permit and reclamation plan, which is developed under the applicable approved regulatory program and not by the status of bond release. OSMRE Response at 7;
(iii) Under MSUMRA, whether contemporaneous reclamation is occurring is primarily measured by the timeliness of the operator’s actions in accordance with permit terms and commitments, including those made in the operator’s approved reclamation plan. OSMRE Response at 11, and;
(iv) Based on available information, there is no reason to believe that, as a factual matter, a violation of contemporaneous reclamation requirements for coal mining operations in Montana, including the Rosebud Mine, is occurring. OSMRE Response at 12.

NPRC-12 There is a woeful lack of evidence of contemporaneous reclamation and/or reclamation success as measured by bond release throughout the West, and this is a significant issue in Montana. Coal strip mines have been operating in Montana for more than 40 years. But as of July 2016, of the 41,809 acres that have been disturbed by coal strip mining operations, only 21,519 acres have achieved Phase I reclamation and bond release, which means that a permittee has completed the backfilling, re-grading, topsoil replacement, re-contouring, and drainage control required for a bonded area. Of particular concern, during this time only 838 acres in all of Montana have achieved Phase IV (final) bond release.2

See response to NPRC-11 part ii.

NPRC-13 Of the 19,160 acres disturbed at the Rosebud Mine since 1976 (when Unit 1 of the Colstrip Generation Facility came on line), only 625 acres have achieved Phase III bond release, the benchmark that demonstrates successful and persistent establishment of plant communities suitable to the region’s dry climate and post-mining land use. Additionally, the draft Environmental Impact Statement (dEIS) for Area F states that only 436 acres of the Rosebud Mine (about 2% of the lands that have been disturbed by mining) have been released under Phase IV, final, bond release. Phase IV bond release means that the essential hydrologic functions of the disturbed and reclaimed lands have been restored or alternative water sources to replace adversely affected water supplies are provided. (As detailed above, we continue to have significant concerns and questions about the alternative water source proposed.)

See response to NPRC-15 regarding bond release status at the Rosebud Mine. See response NPRC-10 regarding phase IV bond release and the alternative water source proposed.

NPRC-14 Northern Plains believes that reclamation at the Rosebud Mine, to date, is a connected and cumulative part of this mine expansion project proposal and must be fully considered and analyzed before any further mine expansion is approved. It is paramount that the progress of Rosebud Mine’s reclamation plan, including the mine’s ability to cover its current and future reclamation obligations, be considered as part of this mine expansion proposal. Specifically, and, at a minimum, the following must be fully analyzed and evaluated:

See responses to NPRC-15 through 19
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<th>NPRC-15</th>
<th>• The status of reclamation at the Rosebud Mine including, but not limited to, an assessment of bond release at the mine operations (all phases), an assessment of any barriers to bond release, and identification of mine areas eligible for bond release. This analysis is done every year through the Annual Reporting process (82-4-237, MCA). In 2018, WECo submitted 637 phase I acres, 3,086 phase II acres, 1,076 phase III acres, and 1,028 phase IV acres for bond release. The 1,028 acres of phase IV bond release encompasses the entire Area E permit area and would reduce the number of permitted mines by the operator. DEQ staff reviewed these acres in 2018 and is making its determination for acceptability. See also response to NPRC-11. As is explained therein, the status of reclamation at the Rosebud Mine has been evaluated by both DEQ and the Office of Surface Mining, Reclamation and Enforcement (OSMRE). The largest barrier to final bond release is Montana’s more stringent phase IV standards requiring entire drainages be completely reclaimed to phase III prior to release of phase IV (ARM 17.24.1116(6)(d)(ii)). WECo submitted plans for phase III bond release sampling this past spring to include areas for phase III bond release in upcoming years [Minor Revisions (MR): Area A MR91, Area B MR88, Area C MR134, and Area D MR95].</th>
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<td>NPRC-16</td>
<td>• A detailed schedule and time frame for achievement of reclamation success for lands and waters at the Rosebud Mine must be analyzed and evaluated. The reclamation schedule is included in the reclamation plan for each mine under sub-part ARM 17.24.313(1)(b).</td>
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<td>NPRC-17</td>
<td>• The direct, indirect, and cumulative impacts of authorizing more land and water (both surface and underground aquifers) for disturbance by coal mining at the Rosebud Mine must be analyzed as well as other mines within the Montana portion of the Powder River Basin (PRB) as connected and cumulative actions. All impacts by operations that could reasonably be considered cumulative with the proposed Area F were analyzed in the PHC (within the permit application) as well as the CHIA. The Powder River Basin is a geologic structure without any hydrologic significance to analysis of impacts of the Rosebud Mine. There is no hydrologic connection between Western Energy’s Rosebud Mine and other mines in the Powder River Basin. The cumulative hydrologic impacts which were assessed in the CHIA’s material damage assessment include the expected total qualitative and quantitative, direct and indirect effects of mining and reclamation operations on the hydrologic balance, including surface and groundwater. ARM 17.24.301(31); Section 82-4-227(3), MCA. The CHIA assessed the probable cumulative impact of all anticipated mining in the area on the hydrologic balance and sufficiently determined in writing and upon affirmative record evidence that the proposed Area F mining operation, as approved, is designed to prevent material damage to the hydrologic balance outside the permit area. Section 82-2-227(3)(a), MCA; ARM 17.24.405(6)(c); In re Signal Peak Energy (Bull Mountain Mine) No. 1, BER-2-13-07-SM, Findings of Fact, Conclusions of Law and Order (Jan. 14, 2016) at 56.</td>
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<td>NPRC-18</td>
<td>• Significant conditions and/or stipulations to the proposed mine expansion proposal that requires addressing the problems identified with the lack of reclamation and final bond release success must be evaluated. WECo has stayed current with their reclamation requirements. See response to NPRC-11. Therefore, no stipulations or significant conditions regarding bond release are required.</td>
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<td>NPRC-19</td>
<td>Given the lack of reclamation occurring at other areas of the mine, how does expanding the mine permit area encourage more reclamation and prevent the mine from falling even further behind in its responsibilities under SMCRA? It is our opinion that DEQ must assess the timing of reclamation activities within the proposed mine expansion area and thoroughly consider the impacts of prolonged or untimely reclamation, including re-establishment of vegetation and restoration of water resources. Compounding our concerns about the status of reclamation and its completion is the financial status of Westmoreland Coal (see below). See response to NPRC-4.</td>
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In summary, we believe that DEQ must wait to see what entity controls Western Energy as bankruptcy proceedings unfold, and then evaluate how able that company is to meet the reclamation requirements outlined in SMCRA.

**The Bankruptcy of Westmoreland Coal Company**

Westmoreland Coal Company entered into a Restructuring Support Agreement (RSA) with its lenders prior to entering bankruptcy. The RSA is intended to guide the trajectory of the bankruptcy and contemplates the assumption of ownership and control of several Westmoreland Coal Company’s mines, including the Rosebud Mine, by a newly formed entity owned by Westmoreland’s lenders. If this is the case, we urge DEQ to wait before granting this expansion permit until the corporate reshuffling is finalized. This will then allow DEQ to take a hard look at the financial health of the future parent company and determine whether or not they are capable of financing contemporaneous reclamation.

In the Acceptability Determination, DEQ determines the bond amount for Rosebud Coal Mine Area F is $13,750,000. Given that Westmoreland Coal Company is currently in debt for more than $300 million, how can DEQ be assured that this company or any future new company comprised of Westmoreland’s current lenders would provide the financial stability required to back this bond?

Rosebud and Big Horn counties, home to the Rosebud and Absaloka mines, have retained a lawyer to represent them in Westmoreland’s bankruptcy proceedings, presumably to ensure that back taxes owed by those mines are paid in the coming months. With the uncertainty surrounding future revenue streams from the Rosebud Mine, we again ask that DEQ wait before approving a 6,700-acre permit expansion.

**Conclusion**

This proposed mine expansion would permanently remove the Rosebud coal aquifer - an aquifer that currently sustains working ranches, which are also part of the area's economic base. The proposed mine expansion ignores the lack of significant reclamation at the current mine. As a steward of our public resources, DEQ has an obligation to protect the water resources of this area as well as ensuring that reclamation of the Rosebud Mine proceeds in a faster manner than it currently is happening.

As we have explained in our comments above, these are not "normal" times in the energy world, and, because Westmoreland Coal is currently in bankruptcy and will likely disappear as a company, it is imperative that DEQ take a hard look at the financial health of the new owners of the Rosebud Mine before opening up a mine expansion that will permanently remove the Rosebud coal aquifer. We believe it is incumbent upon the state and federal government to include additional scrutiny of economic stability and bond and credit ratings backing reclamation, as well as beginning to look at what all these decisions mean in context of an economic transition for the Colstrip area.

As described in the response to NPRC-9, and in the CHIA Section 9.5 and 9.6, the Rosebud Coal is not a reliable source of water for wells, and most wells which support agriculture are completed in the underburden. Groundwater contributions from the Rosebud Coal and overburden to surface water are minor, and disruption of this flow during mining is not anticipated to have impacts on surface water quantity outside the permit boundary.

In accordance with ARM 17.24.405(7), DEQ cannot issue a permit until the applicant files the required performance bond. The standard applied by DEQ in determining the amount of performance bond is the estimated cost to the state if it had to perform the reclamation, restoration, and abatement work under MSUMRA, the rules adopted thereunder, and the permit. ARM 17.24.1102. The performance bond must be in the form of a surety bond or a collateral bond. ARM 17.24.1105. Western Energy has provided the performance bond required by § 82-4-223, MCA.

The State of Montana is bound by regulation to guarantee that a new owner post adequate bond prior to transfer of the permit. Pursuant to ARM 17.24.418, a permit cannot be transferred unless the potential transferee or assignee obtains a performance bond sufficient to cover the original permit in its entirety from inception to completion of reclamation. In
addition, ARM 17.24.1110(2) requires DEQ to not release the current bonds for the Rosebud Mine until an acceptable replacement performance bond is approved. An operator cannot conduct mining without a permit.

DEQ would run the risk of violating federal law if it were to delay a decision on the Area F permit application solely because Westmoreland is in bankruptcy. The Westmoreland bankruptcy is presently pending before the United States Bankruptcy Court for the Southern District of Texas (Judge David R. Jones, presiding). In an October 9, 2018 Order Restating and Enforcing the Worldwide Automatic Stay, Anti-Discrimination Provisions and Ipso Facto Protections of the Bankruptcy Code, Judge Jones reiterated and reinforced the anti-discrimination provisions of the Bankruptcy Code:

“Pursuant to section 525 of the Bankruptcy Code, all governmental units and other regulatory authorities are prohibited and enjoined from: (a) denying, revoking, suspending, or refusing to renew any license, permit, charter, franchise, or other similar grant to the Debtors; (b) placing conditions upon such a grant to the Debtors; or (c) discriminating against the Debtors with respect to such a grant, solely because the Debtors are debtors under the Bankruptcy Code, may have been insolvent before the commencement of these chapter 11 cases, or are insolvent during the pendency of these chapter 11 cases.” Id. at ¶ 4.

MSUMRA provides for successor operators to assume all permit obligations. § 82-4-238, MCA; ARM 17.24.418. In order to be permitted to operate, a successor operator must comply with the requirements of MSUMRA, which includes bonding requirements. § 82-4-223, MCA.
Dear Mr. Yde,

These comments are submitted on behalf of the Montana Environmental Information Center, the Sierra Club, WildEarth Guardians, 350 Montana, and Environment Montana Research & Policy Center (collectively, Citizens).

Montana Environmental Information Center ("MEIC") is a 501(c)(3) nonprofit organization founded in 1973 with approximately 3,000 members throughout the United States and the State of Montana. MEIC is dedicated, in part, to the preservation and enhancement of the natural resources and natural environment of Montana and to the gathering and disseminating of information concerning the protection and preservation of the human environment through education of its members and the general public concerning their rights and obligations under local, state and federal environmental protection laws and regulations. MEIC is also dedicated, in part, to assuring that federal officials comply with and fully uphold the laws of the United States that are designed to protect and enhance the environment from pollution. MEIC and its members have intensive, long-standing recreational, aesthetic, scientific, professional, and spiritual interests in the responsible production and use of energy, the reduction of greenhouse ("GHG") pollution as a means to ameliorate our climate crisis, and the land, air, water, and community impacted by climate change. MEIC submits these comments on its own behalf and on behalf of its adversely affected members.

Sierra Club is America's oldest and largest grassroots environmental organization. Sierra Club has 1.4 million members and supporters. Founded in 1892, the Sierra Club has been working for well more than a century to protect communities, wild places, and the planet itself. Sierra Club is dedicated to exploring, enjoying, and protecting the wild places of the Earth; to practicing and promoting the responsible use of the Earth’s resources and ecosystems; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. Sierra Club's concerns encompass the exploration, enjoyment and protection of the lands and waters of Montana. Sierra Club submits these comments on its own behalf and on behalf of its adversely affected members.

WildEarth Guardians is a non-profit membership organization based in Santa Fe, New Mexico, with offices throughout the Western United States. Guardians' mission is to protect and restore the wildlife, wild places, wild rivers, and health of the American West. To fulfill this mission, Guardians works to confront the harmful impacts of fossil fuel production and consumption and to advance a transition to clean, renewable energy to safeguard public health, the environment, and the climate. Guardians has 202,168 members and supporting activists, some of whom live, work, and/or recreate on and near the public lands. Guardians' members regularly use and enjoy the cultural resources, wildlands, wildlife habitat, rivers, streams, and healthy ecosystems on federal public lands in Colorado, Montana, Nevada, New Mexico, Utah, and Wyoming. Guardians' members use these affected lands for camping, fishing, hiking, hunting, photographing scenery and wildlife, wildlife viewing, aesthetic enjoyment, and engaging in other vocational, scientific, and recreational activities. WildEarth Guardians submits these comments on its own behalf and on behalf of its adversely affected members.
350 Montana is a Montana-based organization that works to reduce atmospheric CO2 concentrations to 350 ppm by implementing strategic actions and advocating policies to end fossil fuel burning with the greatest urgency. We envision a rapid conversion to a 100 percent renewable global energy system using wind, water, and solar. We work with the global grassroots climate movement to achieve these goals and safeguard Earth’s life-support systems.

Montana Elders for a Livable Tomorrow (MELT) is a nonprofit organization of senior citizens in western Montana with lifetimes of experience in industry, academia, wildlife management, government, medicine and civil and political action. MELT’s goal is to leave to future generations a more livable world than the one we are on a path to creating. For MELT, protecting the quality of health, air, water, and land is a moral and ethical issue. MELT’s top concern is the negative impact that the fossil fuel industry is having on these essential issues, in Montana and around the globe.

Environment Montana Research & Policy Center is dedicated to protecting the air, water, and open space in America’s last best place. We investigate problems, craft solutions, educate the public and decision makers, and help Montanans make their voices heard in local, state, and national debates over the quality of our environment and our lives. EMRPC is a project of Environment America Research & Policy Center, a nationwide network with thousands of members in all fifty states, including Montana.

WECo Is Bankrupt

Currently WECo is insolvent and bankrupt. Granting an additional massive mining permit to this failed company would be irresponsible and would unnecessarily put Montana’s at risk of once more paying to clean up the mess of an out-of-state mining company.

Hydrology

The Area F Mine Expansion Will Dramatically Alter the Surface and Ground Water Hydrology of the West Fork Arrmells Basin and Impact the Main Stem of Arrmells Creek.

Professor W. Payton Gardner explains in detail the degree to which the proposed Area F expansion will impact the hydrology in the mining area, West Fork Arrmells Creek and Arrmells Creek.

Hydrologic Balance and Stream Flow:

Stream flow is generated from three major sources, 1) Deep Bedrock Groundwater, 2) Shallow Soil Flow and 3) Direct Overland Runoff. The partitioning of water between these reservoirs, and the characteristic of storage and release of water from each reservoir determine the stream response. Stream flow generation and stream flow response will be affect as a result of mining by altering partitioning and storage and release from all three of these reservoirs.

It is unclear if Dr. Gardner considers all groundwater flow beneath the soil zone in the classification of “Deep Bedrock Groundwater.” Saturated and unsaturated flow of groundwater in alluvium, colluvium, weathered bedrock, and shallow bedrock are also important components of the hydrologic balance which can contribute to stream flow generation. Mining has the potential to affect all of these components of the hydrologic balance.

Much of the discussion of stream flow generation and hydrologic balance in the EIS refers to As Dr. Gardner’s opinion, excerpted by the commenter, points out: “Stream flow is generated
surface runoff of precipitation as the major source of streamflow in West Fork Armells Creek (e.g. pg 511 DEIS), and infiltration excess is often invoked as the cause of overland flow initiation. Infiltration excess is a concept where the precipitation rate exceeds the infiltration rate of soil at the surface, thus water ponds at surface and runs off over the surface. This concept was first introduced by Robert Horton in 1933. However, in almost all subsequent watershed hydrology studies, infiltration excess has never been observed. The process most commonly causing overland flow is “saturation excess”, where soils become fully saturated to the surface, and then increased precipitation then flows overland to the stream.

The difference is subtle but extremely important, since in saturation excess watersheds fill from the bottom up and then spill. Rather than spill during any extreme precipitation event. This explains the hydrograph dynamics observed in the study location, where relatively small precipitation events in early spring and early summer, and very low responses in late July to large precipitation events (pg 212 DEIS). The concept of saturation excess is important when considering stream flow response to mining. In order to generate overland flow, the soil above a lower conductivity and porosity bedrock, must fill before overland flow can begin. Where no bedrock exists, as is the case for mined areas, saturation excess will likely never occur greatly limiting overland flow.

The vast majority of hydrologic scientific research shows that hydrograph response to precipitation input is due to the saturation and rapid lateral redistribution of soil water through soil flow. It is also being increasing recognized that soil saturation state is tightly coupled to the bedrock beneath it. In general, you must have a lower permeability, lower porosity bedrock underlining a soil zone in order for a soil to saturate and begin lateral flow. By removing the underlying bedrock of the overburden and replacing it with a homogenous spoil zone, lateral soil flow will be drastically reduced at the site. It is true that the spoil is more vertically homogeneous than the undisturbed overburden, and vertical permeability of the spoil will likely be higher than that of the premining overburden (except where the overburden at the surface was sandstone or cinder). However, the spoil permeability is still much lower than the permeability of the soil zone. The spoil is compacted by multiple heavy equipment passes during grading, then covered with topsoil which is deeply ripped before seeding. Once vegetation is established, bioturbation and pedogenic processes increase the permeability of the soil, resulting in much higher permeability within the soil layers than that of the underlying spoil, similar to the premining relationship between soil and bedrock. ARM 17.24.644 requires that the permittee “restore the approximate premining recharge capacity of the reclaimed areas” and previous infiltration tests on reclamation have demonstrated the compliance of coal mine reclamation techniques with this requirement. The postmining soil/spoil contact is expected to effectively function in a similar manner as the premining soil/bedrock contact with regards to infiltration and runoff.

Finally, deep bedrock groundwater discharge supplies water to shallow soils at the toe of the slope, the alluvial system, and base flow of surface water throughout the year. This baseflow discharge is critically important in supply long term storage release to the alluvial system, controlling the antecedent moisture conditions, and the total amount of water needed as input before initiating stream flow. In the study area, the principal component of groundwater discharge to the alluvial system in the Rosebud Coal. This evidenced by the higher continuous transmissivity of this formation, the location of wetlands near Rosebud from three major sources, 1) Deep Bedrock Water, 2) Shallow Soil Flow and 3) Direct Overland Runoff.” This is certainly true in perennial streams, which exhibit base-flow derived from bedrock sources. This could also be true in intermittent streams, which may contribute base-flow when the local water table is above the elevation of the streams thalweg or line of lowest points within the streambed. Where this does not apply is in ephemeral streams, which lack groundwater contributions and flow in response to precipitation events.

Dr. Gardner’s explanation points to the difference between saturation excess versus infiltration excess, and further explains that “watersheds fill from the bottom up and then spill” in saturation excess. And it is true that a soil in dry conditions may have a higher infiltration rate than the same soil may exhibit in some moist, wet, or saturated conditions. It also can be true that frozen or partially frozen surface soils do not infiltrate water rapidly. Soil type, establishment of vegetation or roughness, precipitation intensity, and slope are also commonly utilized when modeling surface water contributions. Additional information of streams in and around Area F is available in the Area F CHIA.
Coal outcrop, and the water quality of alluvial groundwater, with a median TDS of 3120 mg/l (DEIS pg 264), which much closer to Rosebud (median TDS 2,965 mg/l – DEIS pg 267), than overburden deposits with a median TDS of 4150 mg/l. A simple mass balance calculation using the above median numbers indicates that 86% percent of alluvial water must be derived from a water with the median composition of Rosebud coal. This chemical mass balance is backed up by physical hydrologic calculations. The annual average runoff generated by the study area derived from the USGS gauge is roughly 72 GPM (PHC pg. 11). The total volume of discharge through the Rosebud coal in the study area, which must discharge to the alluvial system, is 100 gpm (DEIS pg 258). Thus, the Rosebud coal discharge account for a significant proportion of the alluvial system discharge.

By dewatering and removing the Rosebud coal, a major piece of the long term alluvial budget will be reduced for a least a period of several decades. I calculate an extremely rough estimate of 0.10 total porosity replacement period by estimating the volume of water removed by mining 2,179 acres of Rosebud coal (average depth 18.6 ft.). The total water removed is given by:

\[ V/V^* = \phi \phi + V/V \]

Where \( \phi \) is the coal macro porosity, here estimated as 0.10. The time to replace the mined water is estimated as time needed for the total discharge through the Rosebud in the study area (100 gpm DEIS pg 258), here calculated as ~30 years. This is the minimum time required to replace the mined water and does not account losses of storage due to drainage of the Rosebud coal during the mining process. The above calculation indicates that we can expect diminished baseflow and alluvial groundwater levels in West Fork Armsells Creek for a minimum of 30 years after mining ceases.

Using a simple calculation of the gross porosity of the Rosebud Coal to derive time of replacement for water removed during mining must be done with extreme caution. The estimate of 0.10 total porosity is not simple porosity, such as would be seen in a massive sandstone, but a combination of a much lower primary porosity (likely around 0.035, Davis, 1984) and secondary porosity controlled by fractures. Fractures are not uniformly distributed or randomly oriented. The calculation Dr. Gardner uses assumes that spoil backfill will not begin to resaturate until mining is complete. In addition, using Dr. Gardner’s numbers DEQ was unable to replicate the results of his calculation (see Final EIS, Appendix F, p. F-84, 4-6 Response). Even assuming the calculation used is correct, the process of re-saturation in the backfill begins almost immediately, meaning portions of the spoil will be almost entirely saturated to an equilibrium water level before mining is complete. Drawdown and recovery of groundwater levels during and after mining are described in the CHIA, Section 9.6.2, and vary based on location.

Sustained stream flow will only occur when alluvial water levels rise above the channel elevation and are thus strongly affected by the amount and volume of water discharging from the adjacent bedrock and soil into the alluvial system. In fact, the alluvial groundwater and stream water are highly connected and represent roughly the same water. This is distance (a few hundred feet or less) from the issue point. In other areas, alluvial groundwater appears to be perched on unsaturated bedrock, and supplies recharge to that bedrock.

The comparison of TDS in the alluvium to TDS in the Rosebud Coal is indicative of nothing. The TDS of alluvial groundwater is a function of all of the inputs and processes occurring in the alluvial groundwater system. Inputs of water include contributions from the overburden, coals, and underburden depending on location, as well as direction infiltration of precipitation and infiltration of ephemeral flows. Processes in the alluvium which can alter groundwater chemistry include sorption reactions with alluvium, chemical and biological processes, and evapotranspiration. To calculate that 86% of the alluvial water is sourced from Rosebud Coal based on an overly simplistic model which ignores so many factors is scientific malpractice.

The volume of water which flows through the Rosebud Coal in the mine area was improperly calculated in the draft EIS, and is not 100 gpm. This miscalculation was corrected in the 2018 PHC Addendum and in the final EIS (Section 3.8.3, p. 257). The actual flux through the Rosebud Coal in the study area is approximately 10-15 gpm. Using an estimate of 72 gpm for runoff volume ignores all contributions to runoff from areas upstream from Area F, which account for an estimated additional 92 gpm (Appendix O, PHC, p. 13). Using the appropriate numbers for Rosebud Coal fluxes and runoff volumes (15gpm/164gpm), the Rosebud Coal would only possibly contribute approximately 9% of the flow. Even this estimate ignores contributions from other bedrock units and losses of Rosebud Coal water to evapotranspiration along the cropline before it reaches alluvial groundwater, which collectively would make the proportion of water derived from the Rosebud Coal even smaller. Under no reasonable estimate would the proportion of alluvial system discharge sourced from the Rosebud Coal be considered significant.
evidenced by the very close water quality between alluvial groundwater and stream water (DEIS pg 216-234). Given the above analyses, it is my professional opinion, that the potential for long term impacts on wetlands and streamflow generation from Area F expansion are large. The likely impacts are loss of wetlands in the mined area decades, less frequent discharge in reaches downstream of the mined area, a transition of reaches which border on perennial to intermittent and ephemeral status, a reduction in overall stream flow runoff generation for at least a period of several decades. After spoils water is fully recharged, the stream flow dynamics will be greatly changed by the changing the subsurface structure of the watershed. It is not only the topography but the underlying subsurface structure which controls the stream flow response. These effects would be expected to by indefinite and long-term.

Water Quality Effects:

Soils water has 50-200% higher TDS than Rosebud aquifer water (DEIS pg 519). Once the regional hydrologic gradient has reestablished itself, the main source of baseflow discharge in the study area will flow through the spoils and discharge to the alluvial system. This has major implications for the long-term salinity budget. The long-term effect will be that alluvial groundwater and surface will increase in TDS significantly due to the contribution of spoils water to the watershed budget.

WELC-11

Given the similarity of the TDS in Rosebud, alluvial groundwater and stream water in the study area, it is clear the Rosebud derived water is a dominant control on the water quality of the alluvial system. After mining, the water formerly derived from Rosebud Coal will discharge through spoils and thus have much higher TDS.

“After nearly 40 years of monitoring, there is no clear indication that TDS concentrations in the spoil have reached equilibrium or have shown decreases. Possible adverse effects of discharges from spoil on the water quality of down slope streams may increase over time. It is not known how long it would take for the quality of water in spoil to eventually improve as soluble salts and metals are flushed from the system.” DEIS pg 519

Thus, we can expect long term increases in salinity of alluvial groundwater and stream water to the system.

WELC-12

Using hydrologic and chemical mass balance calculations, it is clear that Rosebud discharge is a significant and major source of discharge to the basin and accounts for the majority of the run off generation in study area. Using the runoff calculation for the area from the PHC pg 11

Streams in Area F and the immediate vicinity exhibit predominantly ephemeral flow, with isolated wetland stretches below several springs and seepage below one stockwater dam. Baseflow accounts for a small, and in several cases immeasurable, source of discharge in some of these streams for a limited duration before being reabsorbed into the alluvium.

The comment again rests on the assumption that saturation excess is driving runoff in ephemeral streams, which is contradictory of baseline data that suggests flow in response to precipitation, as well as the operation definition of an ephemeral stream. Ephemeral streams are defined in ARM 17.30.602(10) as:

“a stream or part of a stream which flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow and ice and whose channel bottom is always above the local water table.”

Analysis of hydrologic impacts and material damage to alluvial and colluvial deposits is covered in section 9.6.3 of the CHIA, and a description of baseline conditions is addressed in section 7.2.2.

DEQ evaluated long term water quality impacts on downstream water resources based on a conservatively high estimate of spoil groundwater TDS and did not assume any reduction in TDS in the spoil over time.

Using a simple mass balance mixing model to determine relative contributions of various lithologies to the alluvium or to the Rosebud Coal is not possible without much more complete information than is currently available. Chemical modeling of this type generally

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mostly sourced from perched groundwater within overburden or alluvium, and likely receive little groundwater input from the Rosebud Coal (Appendix B, p. 59).

Water quantity impacts to wetlands adjacent to mining, and inside the permit boundary, are anticipated as described in the CHIA, Section 9.5. Impacts on streamflow outside the permit boundary are expected to be minor to nonexistent, due to the ephemeral nature of the streams near Area F. No perennial or intermittent streams are anticipated to be impacted by reduced water quantity.

See response to WELC-8.
and pg 13, Rosebud discharge is equal to >90% of runoff generation in the permit area and >25% of all runoff generation for the entire watershed upstream of the downstream boundary of the permit area. Given that the TDS increase in this component will be at least 50% and up to 200%, that this represents a large source of water to the alluvial system, and the lack of large sources of water and or salinity downstream, it is likely that changes in salinity would be significant at the confluence with the East Fork Armells Creek and effect the main stem of Armells Creek. Certainly, the potential for cumulative impact to the full main stem of Armells Creek should be better quantified and studied.

The increase in TDS is likely to be long term. Using my minimum refill time, I estimate 30 years to fill one pore volume. It is likely that at least 2 pore volumes must be flushed before the concentration would be expected to start declining assuming no addition of salts from above (DEIS pg 533), which means a minimum of 90 years before concentrations would be expected to start declining. Given the lack of subsurface structure discussed previously, soil flow in the spoils will be downward to the saturated zone thus leaching salts vertically downward through the spoils. Given the low recharge rate <0.4 in/year (Appendix I) this downward leakage of salts would add increase TDS in the spoils water for much longer than a century.

Increases in TDS in the spoil and downgradient receiving waters were conservatively evaluated in the CHIA as permanent, and nevertheless did not result in material damage. Material damage determinations evaluate water quality against concentrations thresholds which adversely affect land uses or beneficial uses of water, violate water quality standards, or impact water rights. The duration of an impact is irrelevant. If material damage was predicted to occur, even for a day, then mining would be prohibited.

Summary:

WELC-13 The increase in TDS is likely to be long term. Using my minimum refill time, I estimate 30 years to fill one pore volume. It is likely that at least 2 pore volumes must be flushed before the concentration would be expected to start declining assuming no addition of salts from above (DEIS pg 533), which means a minimum of 90 years before concentrations would be expected to start declining. Given the lack of subsurface structure discussed previously, soil flow in the spoils will be downward to the saturated zone thus leaching salts vertically downward through the spoils. Given the low recharge rate <0.4 in/year (Appendix I) this downward leakage of salts would add increase TDS in the spoils water for much longer than a century.

WELC-14 Mining directly changes the subsurface structure and function of the study area. This will result in long term changes in the stream flow generation and water quality in the West Fork Armells Creek.

WELC-15 Wetlands distribution and stream flow duration and timing will be negatively impacted for at least several decades as regional flow re-establishes itself. After this, stream flow dynamics and watershed responses will be permanently altered due to the lack of structure in the spoils hill slopes. As regional flow re-establishes itself, baseflow discharge from the Rosebud Coal, through the spoils aquifer, to the adjacent alluvium will cause a long-term and significant increase in the salinity of water in the West Fork Armells Creek alluvial system. It is likely this increase in salinity will be significant far down stream, impact the main stem of Armells Creek. Certainly, the potential for cumulative impact to the full main stem of Armells Creek should be better quantified and studied.

As discussed in the response to WELC-8, the values and calculations Dr. Gardner uses to support his contention that inflow from the Rosebud Coal is a major component of the alluvial groundwater hydrologic balance are incorrect. Therefore, his conclusions regarding the effects on water quality of spoil groundwater, based on these incorrect evaluations, are also not supported by the evidence.

The migration of spoil groundwater downstream in alluvium was estimated in the CHIA, Section 9.6.3, using a conservative mixing method based on fluxes from the groundwater model. Based on this analysis, DEQ determined any changes in TDS after mining would be insignificant below the confluence of Trail Creek and West Fork Armells Creek. Because of the conservative assumptions used in this analysis it is likely any TDS changes would be unmeasurable well before reaching this point.

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| WELC-16 | Professor Gardner’s analysis makes clear that the impacts of the Area F expansion will be felt in the main stem of Armells Creek, which necessitates consideration of the cumulative impacts of all areas of the Rosebud Mine that impact Armells Creek, including Areas A, B, C, D, and E. |
| WELC-17 | Further, because the proposed mine expansion will impact the main stem, by both reducing surface flow due to impounding runoff and removing the Rosebud coal aquifer, which is a major source of low salinity water to the system, and by increasing pollution in the creek, by decreasing fresh water that would otherwise freshen the entire system and by adding pollutants from discharges and spoil recharge, the Department must assess whether the expansion will worsen the existing violations of water quality standard in Armells Creek, including violations of salinity, nitrogen, nitrate plus nitrite, and chloride. Even though the Department’s most recent draft water quality standards attainment report for East Fork Armells Creek seeks to remove the salinity impairments, the Department has not issued a final determination and concerns have been raised about the adequacy of the analysis on which the proposal is based. Moreover, the Department’s most recent assessment of the lower reaches of Armells Creek has concluded that the creek is violation water quality standards for iron and aluminum. WECo has admitted to the Department’s water permitting record in this matter indicates that it cannot meet water quality standards for iron “because it is associated with sediment” at the mine. In fact, the Department’s reasonable potential analysis for the Rosebud Mine’s Clean Water Act discharge permit concluded that there was reasonable potential that the mine would discharge iron, aluminum, and selenium at levels that would cause or contribute to violations of water quality standards in Armells Creek. WECo’s discharge monitoring reports confirm that iron discharges are a problem at the mine, as recent discharges have exceeded permit limitations by orders of magnitude. Further, the permitting record in this matter indicates that selenium concentrations in soils may be a problem. |

Measurable impacts are not expected to extend beyond the watersheds of Trail Creek, McClure Creek, Robbie Creek, Donley Creek, and Black Hank Creek. This includes West Fork Armells Creek to its confluence with Trail Creek. Because Area F disturbance is entirely contained within the West Fork Armells Creek watershed, it was not necessary to consider areas A, B, D, and E. The portion of Area C within the West Fork Armells Creek watershed was considered for cumulative impacts (Area F CHIA Section 5.2). See also response to WELC-10. | Measurable impacts are not expected to extend beyond the watersheds of Trail Creek, McClure Creek, Robbie Creek, Donley Creek, and Black Hank Creek. This includes West Fork Armells Creek to its confluence with Trail Creek. Because Area F disturbance is entirely contained within the West Fork Armells Creek watershed, it was not necessary to consider areas A, B, D, and E. The portion of Area C within the West Fork Armells Creek watershed was considered for cumulative impacts (Area F CHIA Section 5.2). See also response to WELC-10. |
statistically based approaches, confidence is related to the sample or population size. There were two selenium samples taken during the period of record used for RPA analysis in the 2012-issued MPDES permit for the Rosebud Mine facility. Due to the low number of samples, a mean or standard deviation value are not appropriate to input into the RPA equation. EPA addressed this uncertainty in 1991 through the publication Technical Support Document for Water Quality-based Toxics Control, by applying a coefficient of variation of 0.6. Lab analysis for selenium resulted in values of 15 µg/L and <2 µg/L, and the RPA projected a maximum effluent concentration of 57 µg/L. The permit writer developed report only, maximum daily, and/or average monthly effluent limitations by receiving water, outfall status, and precipitation driven condition on the basis of nondegredation. Under the 1999 issued MPDES (currently effective) permit for the facility, there are no effluent limitations for selenium, and no requirement to gather additional data for this parameter to inform future regulation. A chronic iron aquatic life standard of 1,000 µg/L is more stringent than federal technology-based effluent limitations, but is based on chronic occurrence although discharges are infrequent. Like selenium, two samples had been analyzed for dissolved aluminum in the period of record, and an effluent limitation was developed in the 2012-issued MPDES permit. As with selenium, the effluent limitation for aluminum is not present in the 1999-issued (currently effective) permit. The commenter’s point that RPA developed for the 2012-issued permit identifies potential to cause exceedances (violations would be violations of effluent limits) in receiving waters is somewhat uninformed and misguided. This RPA is part of a separate MPDES permit, of which only 18 of 151 outfalls are within the same drainage, and a separate RPA is associated with development of an MPDES permit for Area F. The commenter also points to “recent discharges have exceeded permit limitations by orders of magnitude”. Review of several recent years of records in EPA’s Integrated Compliance Information System (ICIS) Shows a single violation for Iron, with a detected date of 9/30/2017. This references monthly discharge monitoring reports from the facility, which show a record with a daily max of 249 mg/L daily max/monthly average for a precipitation driven discharge from Outfall 060. A letter of violation or warning letter was issued by Montana DEQ. A single event does not demonstrate a pattern of violation or willful noncompliance with the facility MPDES permit.

WELC-18 The Department may not approve this permit unless the record affirmatively demonstrates that the mine expansion will not result in material damage, which includes violations of water quality standards. The Department cannot make this assessment unless it enlarges the analysis area to include all mining in the Armells Creek basin and impacts to Armells Creek. The Department must also assess whether the mine will contribute to the impairment of West Fork Armells Creek—a determination it cannot make until it prepares TMDL (which it must also do for Armells Creek) and determines that there are sufficient waste load allocations and load allocations to accommodate additional pollution from the Area F expansion.

DEQ has no immediate plans to issue a TMDL for West Fork Armells Creek. West Fork Armells Creek has been classified as not fully supporting aquatic life due to naturally occurring iron and aluminum, but no further action has been warranted. A TMDL for East Fork Armells Creek for Nitrate + Nitrite was approved in 1994, but has not yet been scheduled. A TMDL is not the only regulatory approach DEQ may take with respect to a 303(d)-listed water. See DEQ Water Quality Assessment Record (2011) at 9. MEIC is asking this Tribunal to apply a “contribution” standard from the Clean Water Act which applies only to point-source, end-of-pipe discharges. Compare 40 C.F.R. 122.44(d)(1)(i) [requiring end-of-pipe “water quality based” effluent limitations for point source discharges which “have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”]; see also NRDC v. United States EPA, 804 F.3d 149, 170 (2d Cir. 2015). Elsewhere in the Clean Water Act, 40 C.F.R. 122.44(i) prohibits the issuance of a discharge permit to a new discharger if the discharge will “cause or contribute” to a
Further, the Department cannot make a lawful material damage determination unless it assesses whether the cumulative hydrologic impacts of all mining operations, in light of baseline conditions, will result in violations of water quality standards, including standards for salinity, chloride, nitrogen, nitrate plus nitrite, aluminum, and iron. Moreover, there is evidence that the mine may be at least in part responsible for the ongoing violation of water quality standards in all portions of Armells Creek impacted by mining. The Department cannot make a lawful determination unless it investigates whether mining operations are a cause of the existing water quality violations in Armells Creek (including East Fork Armells Creek). The mine may also be a cause of dewatering in West Fork Armells Creek, which locals attribute to upstream mining, and to the violation of water quality standards for iron and aluminum in West Fork Armells Creek. Similarly, because proposed Area F mining cuts into Horse Creek, a tributary of Sarpy Creek, the Department must consider cumulative impacts of the Rosebud Mine and the Absaloka Mine on Sarpy Creek.

The material damage determination is the purpose of preparing a CHIA. The CHIA for Area F is attached to this document. The CHIA assesses the cumulative impacts of Area F and all previous, existing, and anticipated mining in the cumulative hydrologic impact area, and includes analyses of baseline conditions and water quality standards.

Naturally elevated concentrations of an analyte do not constitute a violation. Elevated levels of iron and aluminum in both East Fork and West Fork Armells Creek are attributed to natural conditions, and are similar to other streams in Eastern Montana with similar geology (Area F CHIA Section 7.1.3, p. 31).

DEQ is constrained by law to evaluating potential impacts due to mining activity based on credible scientific evidence. "Locals attribute" does not meet any standard of credible scientific evidence. Monitoring data for surface water and alluvial wells in West Fork Armells Creek do not show any evidence of reduced water quantity downstream from exiting mining in Area C. (CHIA Sections 9.5 and 9.6). Due to the geology underlying West Fork Armells Creek, elevated iron and aluminum levels are expected bases on baseline conditions and do not constitute violations (Area F CHIA Section 7.1.3, p. 31).

Although the permit boundary includes 44 acres of the Horse Creek drainage, no disturbance is planned within this drainage. As it will not be disturbed, no impacts are likely in Horse Creek.

The DEIS improperly limits its analysis of water quantity impacts to the upper portion of the West Fork Armells Creek watershed and the larger Armells Creek watershed. The DEIS at page 515 acknowledges that the strip-mining process will dewater the alluvium. However, the DEIS does not assess how these impacts will manifest themselves farther down in the watershed. It is clear that groundwater is a critical component to streamflow.8 “Most water derived in watersheds comes from subsurface sources. Recent peer reviewed research by the leading hydrologic journals has definitively shown that groundwater discharge is a significant component of stream flow generation in many different systems worldwide.”9 This dewatering of the stream will have downstream impacts that must be analyzed. DEQ and
OMS did this in 1983, when they determined that mining would reduce flow in the alluvial aquifer by 10 acre feet per year, resulting in a 14% reduction in flow in the East Fork Armells Creek/Stocker Creek drainage. Clearly there will be a cumulative impact from strip-mining on stream flow in Armells Creek downstream of the confluence of the East and West Forks. Further, any reduction in flow beyond 10% will violate Montana water quality standards and is not permissible. See Save Our Cabins v. U.S. Dep’t of Agric., No. CV-16-53-M-DWM, F. Supp. 3d (D. Mont. May 5, 2017); 33 U.S.C. § 1323(a); ARM 17.30.715(1).

Although addressed already in DEQ’s Responses to MEIC’s MEPA/NEPA Comments, it bears repeating that the Commenter’s contention that alleged dewatering of East Fork Armells and Stocker Creeks from mining will violate Montana Water Quality Standards is misguided and incorrect, and the Commenter’s reliance on Save Our Cabinets v. USDA, (254 F. Supp. 3d 1241, 1250 (D. Mont. 2017)) to support such contentions is misplaced. Save Our Cabinets involved point source discharges which were subject to nondegradation standards. See id. at 1270. Save Our Cabinets does not, as the Commenter contends, stand for the proposition that “any reduction in flow beyond 10 percent will violate Montana water quality standards.” ARM 17.30.715(1)(a) instead exempts “activities that would increase or decrease . . . the 7-day, 10-year flow by less than 10%” as insignificant changes in water quality which are not required to undergo nondegradation review. Effects on groundwater from mining, however, are the result of non-point source discharges which are not subject to nondegradation review. See Sections 75-5-317(2)(b) and 75-5-103(29), MCA.

This problem is particularly acute because the DEIS admits that after strip-mining dewatered the alluvium and that the discharge to streams will not recover for (vaguely) “many decades.” DEIS at 515. On this latter point, it is important that DEQ and OSM provide some actual numbers about how long it will take for stream flow to recover—will it take 100 years? 200 years? What does “many decades” mean? One study has concluded that strip-mining a coal aquifer will result in “significant deterioration of surface water quality on the long term” and that the “deterioration will last for centuries.” Indeed, even WECo’s retained expert, Michael Nicklin, Ph.D., has admitted that recovery of water levels will take centuries, not decades: “Non-alluvial wells will take a long period of time to recover, probably on the order of hundreds of years.” Again, NEPA requires agencies to tell the environmental truth to the public and not mask it in vague language.

Similarly, it is unclear from the DEIS that surface water resources will ever be restored, at least not on any human time scale. DEQ may not approve the Area F expansion unless the coal company, Western Energy Company, can affirmatively demonstrate that the land it intends to strip mine can be reclaimed. ARM 17.24.405(6)(a). The DEIS is not consistent on this point, but it analysis raises significant doubts that reclamation is possible. For example, the DEIS equivocates significantly about whether the intermittent to perennial streams in the project area that receive baseflow from the Rosebud coal aquifer will ever be reclaimed: “Although stream flows may be restored to the sentence tends to contradict the first half, i.e., stream flows “may be restored” but at the same time “stream flow . . . may not flow through the reclaimed area.” Then the DEIS states bluntly that “where fairly flat, there may be no flow after reclamation.” DEIS at 515. This apparent contradiction may have resulted from ongoing efforts in editing to minimize or understate the impacts to water quantity from strip mining. Indeed, the DEIS originally identified the following irreversible commitment of resources: “the loss of surface flow in Area F stream tributaries due to infiltration into the more permeable spoils.” This language was removed in order to avoid suggesting that the mining operation would violate the requirement of SMCRA and MSUMRA that the mine must be designed to prevent material damage to the hydrologic balance. It was edited to the much more moderate and vague statement in the DEIS that “reduced stream flow in the reclaimed stream channels because of the permeability of the spoil material is higher than

Response to the citizens comments associated with the DEIS for Area F can be found in Appendix F of the Final EIS.
the undisturbed native material.” Notably, this was not based on any empirical analysis, but rather a legal conclusion—i.e., that to be permitted, the mine must be designed to prevent material damage. But that puts the cart before the horse. Both SMCRA and MSUMRA and NEPA require that legal determinations be based on sound evidence, not that conclusory legal conclusions substitute for lack of scientific evidence. It also appears that there was a concerted effort to minimize discussion of the impacts to wetlands in an effort to “provide language for both sides of the issues,” which apparently was intended to mean that any suggestions that impacts would be permanent would have to be removed. Elsewhere, the DEIS, at 526, recognizes that the Rosebud coal aquifer “is the primary contributor of ground water” to wetlands in intermittent and perennial drainages in the West Fork Armells Creek drainage. Further, removing the coal, would cause the groundwater to flow away from the creeks and wetlands and into the spoils. DEIS at 526. Thus, it appears that mining is going to dewater the streams. On the other hand, there is no discussion or analysis of any measures that WECo may take to restore this lost stream flow. All the DEIS states is that after “many decades” (or centuries) when ground water levels naturally recover groundwater discharges to surface water may begin, though potentially at different locations. DEIS at 515. Worse, the water that may return to the streams will likely be bad and will violate water quality standards: “TDS, sulfate, alkalinity, calcium, sodium, nitrate+nitrite, magnesium, and manganese concentrations in streams below the spoil may increase and exceed nitrate+nitrite and total nitrogen standards, and recommended limits for the other parameters for livestock, other ruminants, and aquatic life when and where ground water discharge is the major or only source of water to streams . . . . cattle and wildlife can adapt to higher TDS concentrations, but there may be chronic adverse health effects.” DEIS at 519. These conditions may not change until more than “one or two pore volumes of water” pass through the spoils, DEIS at 533, a process which will likely take many centuries or even millennia. The only mitigation measure identified for this long-term destruction of water resources in the project area is that WECo “would be required to replace any water supply” from sub-McKay sandstones. DEIS at 526, 532. DEQ, however, has flatly admitted under oath that it does not believe that it had legal authority to replace flowing streams with pumped groundwater. WECo’s own hydrology consultant has identified this same obstacle to reclaiming lost stream flow. Indeed, OSM recognized the same dilemma in its 2015 environmental assessment for the AM3 expansion of the Bull Mountains Mine. Notably, neither WECo, nor DEQ, nor OSM has presented any evidence that such replacement water is legally and physically available. Moreover, even if use of such replacement water were legally and physically possible, it is simply not credible that WECo is going to replace any water supplies over the course of multiple centuries and potentially millennia. There is no indication that WECo has made any financial assurances of such future reclamation. Indeed, it seems highly likely that WECo is going to go bankrupt in the next year if not sooner. Not only does this fail to affirmatively demonstrate that reclamation “can be accomplished,” ARM 17.24.405(6)(c), it affirmatively demonstrates the opposite: that reclamation of streams and wetlands cannot be accomplished, which precludes DEQ or OSM from issuing an approval of this proposal. Id.; see also 30 C.F.R. § 746.13, .14.
This latter point raises additional problems. If the strip-mine expansion will violate water quality standards by dewatering intermittent and perennial creeks, OSM may not approve the expansion. 33 U.S.C. § 1323(a); Save Our Cabinets v. United States Dept of Agric., 254 F. Supp. 3d 1241, 1253 (D. Mont. 2017), and Cent. Sierra Envtl. Res. Ctr. v. Stanislaus Nat’l Forest, No. 117CV00441LJOSAB, 2018 WL 746381 (E.D. Cal. Feb. 7, 2018). The DEIS acknowledges that intermittent and perennial portions of multiple tributaries of West Fork Armells Creek (Trail, McClure, Robbie, and Donley Creeks) will be eliminated. Removing the water from a creek necessarily prevents any use of the creek, violating water quality standards. PUD No. 1 of Jefferson Cty. v. Washington Dept of Ecology, 511 U.S. 700, 70 (1994). There is no question that complete dewatering of these intermittent to perennial creeks will violate nondegradation standards. See ARM 17.30.715(1) (reduction of just ten percent flow may result in violation nondegradation standard). It is also possible (though the DEIS does not address the issue) that dewatering of these streams will result in significant reduction in flows farther downstream in West Fork Armells Creek and Armells Creek.

The DEIS further acknowledges that additional water quality violations will result from the increased pollution when the streams eventually regain discharges (albeit polluted discharges) from the spoils. The expected increases nitrate+nitrite will certainly contribute to the downstream impairment of Armells Creek for such pollutants. Additionally, the reduction of fresh water due to settling ponds (which concentrate pollutants, as the DEIS admits) and by removal of discharges of Class I water to the alluvium of these creeks from the Rosebud coal aquifer will additionally tend to cause pollution concentrations in the watershed to increase, worsening the water quality impairments downstream.21 The mine expansion’s expected violation of water quality standards also precludes DEQ from issuing a certificate under 33 U.S.C. § 1341(a) that the mine expansion will comply with water quality standards. See Alabama Rivers All. v. F.E.R.C., 325 F.3d 290 (D.C. Cir. 2003) (change in flow triggers section 401 certification requirement).

Similarly, the impacts to water quality in the receiving streams and in the lower portions of the watershed must be assessed prior to DEQ’s issuance of a discharge permit for the mine expansion. The agencies assert that issuance of the discharge permit will occur subsequent to the approval of the mine expansion. This is impermissible piecemealing of the project. As noted above, agencies may not segment their NEPA analyses. 40 C.F.R. §§ 1508.25, 27(b)(7). Here, it is clear that the mine expansion cannot occur without a discharge permit.

Further, no there is reason to issue a discharge permit without the mine approval. This situation is no different from the logging operation and the road to the logging operation, which the Ninth Circuit said could not be segmented in Thomas v. Peterson, 753 F.2d 754 (9th Cir.1985). In any event, DEQ’s decision not to issue a discharge permit along with its decision on the mine expansion, prevents the agency from reaching any rational conclusion about whether the mine expansion will violate water quality standards.22

The Probable Hydrologic Impacts Analysis Is Inadequate and Insufficient to Support a Material Damage Determination.
WELC-28
In addition the foregoing, the PHC is inadequate in the following respects:

WELC-29
- Even though WECo apparently does not intend to strip mine the main channels of Robbie, Donley, and Black Hank Creeks, the PHC states that mine haul roads will cross the main channels of these creeks. Haul roads constitute mining activities and building a road across a stream channel constitutes disturbance. PHC at 5. As such, it is not permitted. ARM 17.24.651. The PHC and the DEIS acknowledge, as Professor Gardner states, that mining adjacent to the creeks and removing the coal aquifer will dewater intermittent to perennial portions of these creeks, which will not be able to be restored for many decades or centuries. This is impermissible under SMCR, ARM 17.24.651, the Clean Water Act (prohibiting activities that cause violation of water quality standards or reduce stream flows), and the Montana Constitutions, art. 2, § 3 (right to clean and healthful environment), art. IX, §§ 1-3 (prohibiting unreasonable depletion and degradation of natural resources, requiring all disturbed land to be reclaimed, and prohibiting non-beneficial use of water). Worse, the mining plan shows mine cuts through the main stem of McClure Creek and perennial wetland B, in patent violation of ARM 17.24.651.

WELC-30
- The PHC states that the post-mine drainage system will “function similarly to the premine drainage system,” but that is mistaken. PHC at 10. As Professor Gardeners explains the wholesale destruction of the geology of the mine area: “stream flow dynamics and watershed responses will be permanently altered due to the lack of structure in the spoils hill slopes.”

WELC-31
- The PHC also incorrectly states that the “surface water flows at Area F are ephemeral.” PHC at 10. In contradiction of this statement, the PHC also recognizes that the creeks have various reaches of wetlands, most of which are fed by groundwater discharge from the Rosebud coal aquifer. The DEIS recognizes (at 210) that “[a]ll of the wetlands in the analysis area have perennial or near-perennial hydrology.” This includes portions of Trail Creek, McClure Creek, Robbie Creek, and Donley Creek. Equally important, the PHC does not identify and delineate where the creeks transition from intermittent and perennial to ephemeral and back to perennial or intermittent. And it is clear that the creek become perennial or intermittent in the lower reach of West Fork Armells Creek, as the Department has found that “at least . . . the lower 17 miles” of the creek support fish.23 The Department has noted that flow in the creek is very limited—additional reduction in base flow and surface water from mining and impoundments could make portions of the creek become ephemeral, which would foreclose designated uses.24 This is critical baseline information for assessing material damage outside the permit area from dewatering and it is missing. As Professor Gardner notes, the dewatering of the creeks from both mining the aquifer and retention of stream flow in impoundments and pits will cause significant reduction in surface water downstream, and may cause portions of the creek to go from intermittent and perennial to ephemeral. The Department has already witnessed mining at the Big Sky Mine dewater the lower portion of the Lee Coulee watershed. DEIS at 515 (“Some or all surface flow in the creek channels, which are entirely different from perennial or intermittent streams, and covered by different regulations. ARM 17.24.651 specifically addresses flowing water. These perennial to intermittent wetlands are entirely within the permit boundary of Area F, and no perennial or intermittent wetlands or streams outside the permit boundary are anticipated to be “dewatered” due to mining. Requirements for stream crossings by mine roads are covered by ARM 17.24.602 and 605, and plans for road crossings in Area F are compliant with these rules. To the extent possible using the best technology currently available (BTCa), roads “mustnot cause damage to fish, wildlife, and related environmental values and must not cause additional contributions of suspended solids to streamflow or to runoff outside the permit area or otherwise degrade the quantity or quality of surface or ground water.” ARM 17.24.601(6).

The function of an ephemeral stream is not reliant upon the structure of hill slopes, but upon surface conditions which transmit runoff to the stream. Surface soils will be replaced during reclamation, and native vegetation will be re-established. See CHIA Section 9.5.

The Probable Hydrologic Consequences document submitted by Western Energy for Area F has been through many rounds of review to make sure it provides enough information to determine whether or not the proposed mining is designed to prevent material damage.
flow may infiltrate into the spoil rather than flowing to the lower portion of the watershed, as has been observed at the Big Sky Mine during reclamation.”). The public and the Department will not be able to discern the downstream impacts of the mine if WECo is not made to provide necessary baseline information. See Mont. Code Ann. § 82-4-222(m) (requiring PHC to include “determination of the probable hydrologic consequences of coal mining and reclamation operations, both on and off the mine site, with respect to the hydrologic regime and quantity and quality of water in surface water and ground water systems, including the dissolved and suspended solids under seasonal flow conditions and the collection of sufficient data for the mine site and surrounding areas, so that cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability can be made. However, this determination is not required until hydrologic information on the general area prior to mining is made available from an appropriate federal or state agency. The permit may not be approved until the information is available and is incorporated into the application”). Relatedly, because there is no more precise delineation of the nature of the waters downstream, the PHC’s generic statement about “reduced flows to the Armells Creek drainage downgradient of Area F during mining” is meaningless.

| WELC-32 | The PHC’s statements that precipitation dominates surface flow in the West Fork Armells Creek tributaries is mistaken. Baseflow provides the conditions for surface flow and provides the reliable water supply that is critical to the region during the summer months. As Professor Gardner elucidates, groundwater discharge is a critical component of the system and groundwater from the Rosebud Coal in particular is provides a significant amount of water in the system and is the principle source of fresh water in the creek. The DEIS similarly recognizes that the “Rosebud coal is the primary contributor to ground water to . . . wetlands and drainages” and (DEIS at 523) it is far from certain—and surely not an affirmative demonstration—that groundwater discharge from the thinner McKay coal seam “would be sufficient to maintain baseflow at the premining locations.” (DEIS at 531.)

Groundwater discharge from bedrock units impacted by mining is only a minor component of the water balance in alluvium and surface water. Locally, Rosebud Coal groundwater contributes to support of wetlands within the permit boundary. As described in the response to WELC-31, although Robbie Creek and the main stem of West Fork Armells Creek may have intermittent reaches downstream from Area F, they are not expected to be impacted by mining. Water quality in alluvial groundwater after mining, which would largely control water quality of intermittent surface water, was analyzed in the CHIA in Section 9.6.3. This analysis demonstrates that alluvial groundwater quality will not be measurably different from baseline conditions below the confluence of Trail Creek and West Fork Armells Creek.

| WELC-33 | The PHC does not appear to address the total increases in salinity in surface water that should be expected from the proposed mining project. The PHC recognizes that spoil water will be extraordinarily saline (7458 mg/L TDS), but nowhere does the PHC assess how the increasingly saline spoil water will affect salinity levels in West Fork Armells Creek and beyond. As Professor Gardner notes, the Rosebud Coal is the freshest source of groundwater in the system and replacing it with water that it 50% to 200% more saline will have a significant effect on the system that is already stressed for salinity. This does not even factor in the impact of pits and retention ponds that will store surface water that would otherwise freshen the downstream reaches of the creek. As the Department noted nearly 20 years ago, this retention of water in evaporation ponds tends to increase salinity in the alluvium—as seen in the 40% increase in salinity in the upper reach of East Fork Armells Creek coincident with mining.25 The PHC recognizes that retention ponds and impounds will “evaporate” the water, which will concentration the salts, as the Department noted in the CHIA for AM4. Nowhere does the PHC assess the combined impacts on salinity from (1) removal of the freshest source of groundwater from the system (the Rosebud coal aquifer); (2) retention, evaporation, and concentration of salts from the capture of otherwise fresh precipitation.

Changes in salinity in surface waters downstream from Area F were addressed in the June 2018 Addendum to the PHC. See Area F Permit, Appendix O, Addendum to Probable Hydrologic Consequences Report Area F Permit, pages 6-9.

The comment mischaracterizes the salinity of the spoil water as “extraordinarily saline.” “Extraordinarily saline” is not a term used to describe the salinity of waters. Depending on the classification system used, spoil water would be considered brackish or moderately saline. Saline water has a TDS of 30,000 to 50,000 mg/L TDS, while waters with TDS greater than 50,000 mg/L area classified as hypersaline or brine.

There are no “evaporation ponds” in the mining plan for Area F. Water will be retained in sediment ponds as required by MPDES permitting. This water is subject to the same evaporation it would be in a natural wetland, with the exception of much lower evapotranspiration from vegetation. Following large precipitation events, water will be held until it meets MPDES requirements, and then discharged to restore capacity in the pond as required by MSUMRA.

In context, the 40% increase in TDS between 1975 and 1995 above Colstrip was compared to
runoff and snow melt in retention ponds; and (3) the eventual increase in salinity from the spoils aquifers. The PHC is also mistakenly suggests that water that infiltrates from retention ponds and migrates to the alluvium will be of the same quality as water that is discharged during planned discharges (PHC at 15) infiltration of water. This analysis does not take into account that water that remains in retention ponds to infiltrate and evaporate will—on account of concentration from evaporation—have higher pollution levels than what is discharged when the ponds are full. Moreover, as the DEIS recognizes the pit water may include blasting residuals and other contaminants, which could be contained if the ponds and pits are lined (DEIS at 523). The DEIS recognizes that the spoil water would be broadly harmful to livestock and wildlife: "Based on spoil water quality presented in section 4.8, Water Resources, Groundwater, TDS, sulfate, alkalinity, calcium, sodium, nitrate+nitrite, magnesium, and manganese concentrations in streams, below the spoil may increase and exceed and total nitrogen standards, and recommended limits for the other parameters for livestock, other ruminants, and aquatic life when and where groundwater discharge is the major or only source of water to streams," i.e., late summer flows. DEIS at 519.

a 50% increase in TDS below Colstrip (Erbes 1998). Additionally, data collected since 1998 has demonstrated that the majority of the change in TDS in East Fork Armells Creek alluvial groundwater was due to increases in water levels due to increased precipitation.

Alluvial groundwater in Area F is higher in TDS than currently recorded discharges from areas A, B, C, D, or E. Water retained in sedimentation ponds is discharged when the water quality meets MPDES standards, and is not held long enough for dramatic changes in chemistry to occur from evaporation. All wastewater discharges out of the mine are routed through MPDES outfalls. Any discharge from an MPDES outfall is regulated through technology and/or water quality based effluent limitations developed on a parameter by parameter basis. All receiving waters of Area F are hydrologically ephemeral, and have zero flow in critical low flow conditions which preclude mixing zones to meet water quality regulation. As no mixing is available for any outfall associated with Area F, all discharges must meet applicable water quality effluent limitations at the point of discharge, also known as "end of pipe". Because there are no perennial or intermittent stream reaches within the permit area, water that infiltrates to alluvial groundwater will not have an impact on downstream surface water quality. Groundwater discharge is a major source of water only for spring/seep fed wetlands within the Area F permit boundary.

The PHC at 15 mistakenly states that the "surface water quality at the mine is continually monitored." Continually monitoring is preferable and the Citizens implore the Department to impose continual monitoring. At present, however, WECs only monitors on a quarterly basis. Indeed, Dr. Nicklin testified that monitoring more frequently would not be reasonable.

"Continually" is not the same as "Continuously". According to the American Heritage Dictionary, "Continual" means "Repeated regularly and frequently". "Continuous" means "Extending or prolonged without interruption or cessation; unceasing". There is no technology available that will monitor the analytes required by the MQAP on a continuous basis. Streams and springs are monitored for flow plus conductivity and pH monthly, and sampled for chemistry either quarterly or semi-annually. Ponds are checked for capacity, conductivity, and pH monthly, and sampled for chemistry on a quarterly basis. Additional samples and/or measurements are taken as needed on an event basis as prescribed in the MQAP. Sampling frequency is determined by degree of observed or anticipated change, availability (in the case of ephemeral streams and springs), and proximity of mining activity.

As explained in the response to WELC-34, the monitoring frequencies for the Rosebud Mine monitoring plan and Area F baseline monitoring are reasonable and is based on data from historical monitoring at the Rosebud Mine. Increasing the frequency of monitoring would not likely change the statistical significance of changes in water quality, as the natural variability of water quality is independent of sampling frequency.

The 40% increase in salinity coincident to mining has been determined, based on additional data gathered since 1998, to be just that "coincident." The data indicates that increases in salinity are due to changes in water level, primarily caused by increased precipitation, and not due to impacts from mining.

Exceedances of water quality standards are not violations when they occur naturally.

Spoil water quality should properly be compared to overburden, as spoil is composed almost entirely of overburden material. Water quality in the spoil is likely to reach an equilibrium with lower TDS than the overburden, due primarily to increased flow rates as compared to undisturbed overburden (EIS Section 4.8.3.1, p. 536). Groundwater in the spoil will likely
indirect effects of continued mining) and must be considered in the Department’s CHIA and material damage determination. See ARM 17.24.301(31). always have higher TDS than the best instances of Rosebud coal water, but will fall within the baseline range for overburden groundwater quality.

DEQ’s Coal Section does not determine impairment of waterbodies under the 303(d) list. The Coal Section considers the impairments determined by DEQ’s Water Quality Division as part of the existing environment in which mining impacts occur. For material damage to occur the quality of the existing environment must be degraded or reduced “by coal mining and reclamation operations” which include only those permitted activities which occur within the permit boundary. Impacts caused by combustion of the coal or other operations of the power plant cannot, by definition, result in material damage. Impacts caused by the power plant are regulated by different entities than the Coal Section, and have been the subject of previous litigation. Mitigation of these impacts is currently ongoing under an AOC.

The PHC attempts to minimize the impacts of reduced stream flows from the mine’s destruction of the Rosebud coal aquifer and retention of runoff in settling ponds by stating that stock watering is already “opportunistic” and that “the water supply from runoff is scarce during dry and average conditions.” PHC at 16. This however shows how critical water is to sustainable ranching operations in the area and the broader ecology. Given the general scarcity of water resources destruction of the best ground water source in the area and retention of surface water could have a devastating effect downstream, certainly it could adversely affect beneficial uses. Mont. Code Ann. § 82-4-203(31) (defining material damage). Retention of runoff is only temporary, and impounded water beyond the immediate needs of the mine is generally discharged as soon as MPDES limitations allow, to retain capacity for unexpected storm events. The effect of this process is to make the flows downstream somewhat less flashy. As the mine area is reclaimed, the surface will be engineered to be hydrologically similar to the premine topography. The net effect is that given similar inputs, the flow in the ephemeral streams will be similar to the baseline. Erosion will be lower, as post-mine topography is required to be dynamically stable. Evapotranspiration will be slightly higher, as reclaimed land is vegetated to a higher plant density than many natural areas. Recharge to the alluvial and overburden aquifers will be similar to pre-mine, and once the spoil aquifers have stabilized, they will recharge at a slightly higher rate than the pre-mine Rosebud Coal aquifer, due to increased vertical conductivity.

The Rosebud Coal is not the “best ground water source in the area.” The June 2018 PHC Addendum calculates the total groundwater flow through the Rosebud Coal and overburden in the mined-out area, and this flow is small in comparison with other portions of the hydrologic balance. As described in the CHIA, Section 7, the best groundwater source near Area F is the underburden. Groundwater from the Rosebud Coal is rarely used to support agriculture in the area surrounding Area F.

From Appendix B. page 24: “The Rosebud Coal and McKay Coal also have low transmissivities and hydraulic conductivities, and generally would be considered poor aquifers.” The Rosebud Coal has a lower average conductivity than most other lithologies, but it would still be considered unusable in other contexts. It also has low transmissivity, making it very difficult to complete a well that will yield useful quantities of water. The small amount of water that discharges from the Rosebud coal to springs does not provide a major source of streamflow to any creeks.

The PHC’s statement that “during mining, impacts to surface users can be mitigated, most likely by the installation of water supply wells sourced by coal and/or sub-McKay aquifers” (PHC at 17) is false and misleading. The Rosebud coal is the freshest source of water in the system, as Professor Gardner notes. Ground water from the McKay coal and the sub-McKay sandstones on the other hand is too saline for livestock, exceeding the upper limit of 300 mg/L recognized in Hutchinson 2001 and used by the Department in other CHIAs, including its revised CHIA for the Bull Mountains. The median and average concentrations of Concentrations of sodium, as cited in the comment, are not representative of the “salinity” of the groundwater, which is generally measured using TDS or conductivity. DEQ no longer uses the livestock drinking water guidelines from Hutchinson, 2001, as more recent and better documented guidelines are available (see CHIA Table 2-3). Livestock guidelines are only guidelines, and not enforceable standards (Area F CHIA Section 8.5). The PHC statement that impacts to surface water users can be mitigated using groundwater
sodium in the McKay coal are 472 mg/L and 382 mg/L (Table B-23). They are 438 and 440 in the sub-McKay. On the other hand, they are only 194 mg/L and 253 mg/L in the Rosebud coal and 232 mg/L and 295 mg/L in the alluvium (indicating that the discharges of the Rosebud coal freshen the alluvium). WECo cannot replace clean water with dirty water. And it cannot replace water that is safe for livestock with water that is not safe. No where does WECo talk about installing and paying for treatment systems to remove the salinity that it proposes to be pumped from the deeper aquifers, as it must do if it to offer such water as mitigation for its destruction of the highest quality groundwater in the area.

The PHC fails to address the ongoing and worsening impacts of (due in part to the continued strip-mining and combustion of coal) climate change on the area’s long term hydrologic conditions. Ground water is arguably the most precious finite resource in south east Montana. In the arid climate of Rosebud County, groundwater is often the only accessible water for wildlife and livestock in the dry summer months. Coal mining in the region has already impacted the amount of groundwater that is available as well as the quality of water in springs, seeps and wells. As the impacts of climate change projected for Montana become better understood, it is clear that this is a resource that must be protected. The 2017 Montana Climate Assessment provides the most recent, peer-reviewed research on Montana’s hydrology. Models abound, and none of them agree. Recent precipitation data from Colstrip (CHIA Figure 4-2) has shown greater variability in the past several years than observed in previous decades, with overall higher average precipitation than 30-year averages.

Precisely because climate change is likely to result in greater demand for groundwater, the Department must assure that groundwater supplies—such as the McKay coal aquifer and the sub-McKay—remain available for livestock. ARM 17.24.304 requires that an application for an underground coal mining permit include (among other things): a description of alternative water supplies, not to be disturbed by mining, that could be developed to replace water supplies diminished or otherwise adversely impacted in quality or quantity by mining activities so as not to be suitable for the approved postmining land uses. ARM 17.24.304(1)(f)(iii). ARM 17.24.648 requires that Western Energy replace the water supply of any owner of interest in real property who obtains all or part of his water supply for domestic, agricultural, or other uses from surface or ground water if such supply has been affected by contamination, diminution, or interruption proximately resulting from mine operations. It is further required by 82-4-253, MCA, that replacement water will be of like quality, quantity, and duration to the water lost. Possible sources of replacement water would likely be ground water pumped from the unmined areas of the Rosebud Coal aquifer west and south of the project area, the McKay Coal aquifer, or the Sub-McKay aquifer, and the water quality of these aquifers is comparable to the existing quality of the streams, springs, and wells in and near the project area.

The probable effects of increased melting of the Rosebud coal are not misleading. Surface water uses occur at ponds and springs, which have median baseline TDS values of 3,550 mg/L and 2,010 mg/L, respectively (CHIA Table 7-1). The median baseline TDS of the Rosebud Coal, interburden, McKay Coal, and underburden are all lower than these values (CHIA Tables 7-6 through 7-9). Overall, water quality in the coal and/or underburden groundwater is similar to or better than that in surface water currently used by livestock in the area. ARM 17.24.304 requires that an application for an underground coal mining permit include (among other things): a description of alternative water supplies, not to be disturbed by mining, that could be developed to replace water supplies diminished or otherwise adversely impacted in quality or quantity by mining activities so as not to be suitable for the approved postmining land uses. ARM 17.24.304(1)(f)(iii). ARM 17.24.648 requires that Western Energy replace the water supply of any owner of interest in real property who obtains all or part of his water supply for domestic, agricultural, or other uses from surface or ground water if such supply has been affected by contamination, diminution, or interruption proximately resulting from mine operations. It is further required by 82-4-253, MCA, that replacement water will be of like quality, quantity, and duration to the water lost. Possible sources of replacement water would likely be ground water pumped from the unmined areas of the Rosebud Coal aquifer west and south of the project area, the McKay Coal aquifer, or the Sub-McKay aquifer, and the water quality of these aquifers is comparable to the existing quality of the streams, springs, and wells in and near the project area.
sub-McKay sands—are known to be physically and legally available for additional use before allowing WECo to include such resources in any mitigation proposal. Without this information, there is no affirmative showing that material damage will not result and no affirmative demonstration that reclamation is possible.

WELC-39

- The PHC’s assertion about MPDES discharges causing rapid recovery of alluvial water levels fails to account for (1) the uniquely uncommon precipitation and record flooding that contributed to the temporary alluvial recovery in East Fork Armells Creek and (2) that so long as the adjacent spoils have not recovered the temporary pulse of water from record rainfall will eventually drain to the spoils, as the Department has witnessed in Lee Coulee after mining at the Big Sky Mine, noted above.

- Monitoring in the area of East Fork Armells Creek and Lee Coulee has demonstrated that alluvial water levels have increased when significant volumes of treated water are discharged into the stream channels. Ephemeral stream channels are losing reaches, meaning that water from the stream flows downward to groundwater. Unusually high precipitation will add to this recharge. Alluvium, along with clinker, is one of the major sources for recharge to underlying units in this area, whether those units are overburden, Rosebud Coal, or McKay Coal. Because the stream channels will be mostly undisturbed, alluvium will not directly overlie spoil, but much of the recharge that eventually reaches the spoil will come, at some point, from alluvium. This is the natural function of the hydrologic system, and it will be reclaimed to a similar function.

Hydrologic conditions at Area F are not equivalent to the Big Sky Mine and Lee Coulee as discussed in the response to WELC-31. At Big Sky, mining occurred through the channel of Lee Coulee and the existing Lee Coulee alluvium in the mined out area was replaced by spoil. At Area F, the major stream channels will not be disturbed, and continuity of the alluvium from upstream, through the permit area, to downstream will be maintained. This will minimize the disturbance to the hydrologic balance in the alluvial groundwater.

WELC-40

- The PHC’s suggestion that salinity levels in the spoils will begin to recover after the passage of “one or more pore volumes of groundwater” (PHC at 21) was rejected in the DEIS, for not being based on the best science: “According to the PAP, Appendix O, TDS concentrations in the spoil should reach equilibrium after one or two pore volumes of water pass through the spoil, based on bench-scale testing. However, Van Voast and Reiten (1988) noted that this concept is only valid where there is no vertical recharge. Pre-mining water level data from the project area indicate that vertical recharge does occur in some areas (see Section 3.8.3, Conceptual Hydrogeological Model). Also, Van Voast and Reiten (1988) state that vertical recharge to the spoil may occur where the spoil contains large quantities of sand. In arid environments where the potential evaporation rate exceeds the annual precipitation, it is not uncommon for there to be net vertical recharge to ground water under certain conditions, such as unusually wet periods. Therefore, one or two pore volumes of ground water in the project area may not be sufficient to reach equilibrium with respect to water quality of the spoil. Based on the spoil water quality from areas A, B, and C, it will require more than 40 years postmining to reach equilibrium in project area spoil, which constitutes an irreversible commitment of resources where the Rosebud Coal is replaced by mine spoil.” DEIS at S33.

Adding vertical recharge to the recovery model may actually reduce the time to equilibrium, as precipitation water is considerably lower in TDS than any of the groundwater supplies in the area. In any case, vertical recharge moves very slowly in comparison to horizontal flow from adjacent aquifers, and any effects on the system are likely to be quite small. Regardless, whether spoil groundwater TDS lowers over time has no bearing on DEQ’s decision regarding the mine being designed to prevent material damage. The CHIA analyzes impacts using a conservatively high value of TDS for spoil water quality, and does not rely on reduced TDS over time to conclude that no material damage is predicted (CHIA Section 9.6.2).

WELC-41

- The PHC does not support the assertion that the replacement of the fresh Rosebud coal aquifer with brackish spoils “will not impact existing and viable beneficial uses.” PHC at 23. Indeed, the DEIS concludes just the opposite: “Based on spoil water quality presented in section 4.8, Water Resources, Groundwater, TDS, sulfate, alkalinity, calcium, sodium, nitrate+nitrite, magnesium, and manganese concentrations in streams, below the spoil may be considered brackish.”

The comment mischaracterizes the water in the Rosebud Coal as “fresh.” According to generally accepted definitions, brackish water has a TDS concentration from 500 mg/L to 30,000 mg/L. Fresh water has a TDS of less than 500 mg/L. Therefore, both Rosebud Coal groundwater and spoil groundwater would be considered brackish.
increase and exceed and total nitrogen standards, and recommended limits for the other parameters for livestock, other ruminants, and aquatic life when and where groundwater discharge is the major or only source of water to streams,” i.e., late summer flows. DEIS at 519. The PHC’s statement that water supplies are limited in the area contradicts its assertion that existing and beneficial uses can withstand the removal and destruction of the highest quality groundwater source in the region. Further, the PHC’s statement that the “primary groundwater supply is from the sub-McKay sandstones as demonstrated by existing wells” is misleading. PHC at 23. The 1982 EIS for Area C recognizes the Rosebud coal aquifer as having “[s]ome of the best quality ground water in the Rosebud mine area.”28

Groundwater is not the major or only source of water to streams anywhere in Area F. As has been pointed out repeatedly, streams in Area F are ephemeral and primarily dependent upon precipitation. The only location “where groundwater discharge is the major or only source of water” to surface waters is in intermittent wetlands supported by seeps or springs. Impacts to these springs and wetlands are discussed in the CHIA, Section 9.5.

As described in previous comments, describing the Rosebud Coal as “highest quality groundwater source in the region” is misleading. In some locations dissolved parameter concentrations in the Rosebud Coal are lower than other groundwater units, while in other locations other groundwater units have lower concentrations.

The PHC’s statement that “primary groundwater supply is from the sub-McKay sandstones as demonstrated by existing wells” is not misleading, and is based on the actual completions of existing wells. Two wells have been identified as being sourced from the Rosebud Coal. One of these is a dry well. The Sub-McKay is listed as the source for 42 wells, overburden for 5, and alluvium for 2 (PHC, Table O-6). Therefore, the Sub-McKay is the primary groundwater supply in Area F (Area F CHIA Section 7.2.1, p. 35). There are 89 wells listed as “unknown”, and some of those will undoubtedly be screened in the Rosebud Coal, but most probably the distribution between the Rosebud Coal and the Sub-McKay is similar to that of the identified wells. The Rosebud Coal has low transmissivity at the Rosebud Mine, with a median of 4 ft²/d, while the Sub-McKay has a median transmissivity of 63 ft²/d (CHIA Table 7-2). While in many locations the Rosebud Coal water quality could be described as “better” than the sub-McKay water quality, the differences in water quality are generally minor, and the greater water quantity available from the Sub-McKay make the Sub-McKay the more desirable water source.

The PHC’s assurance that there will remain a sufficient supply of water for various beneficial uses is also not convincing. First, the document refers to an Attachment B-P, which does not seem to appear in Appendix B. Second, it is not clear where the water for livestock or wildlife will come from, given that the only water sources that do not exceed livestock standards (and by analogy wildlife standards)—the alluvium and Rosebud coal aquifer are going to be permanently altered for the worse by the mine expansion, such that they will almost certainly exceed livestock standards for salinity (Rosebud coal will be replaced with extremely saline spoils with average TDS levels above 7,000 mg/L and the Rosebud coal is the freshest source of groundwater discharging to the alluvium). Third, there does not appear to be any funding set aside to pump and purify replacement water. And fourth, it is anticipate that the impacts of climate change (aggravated by the mine expansion) will put increased pressure on the very groundwater supplies that WECO now proposes as the replacement water source. This is insufficient for any rational affirmative demonstration that material damage will not occur or that mitigation can be accomplished.

Attachment B-P is simply the text of ARM 17.30.1006, defining groundwater classifications and beneficial uses. Attachment B-P is located beginning on page 9,805 of the Appendix B pdf, and is bookmarked in the pdf file.

Water to replace impacted supplies, if needed, will be taken from the Sub-McKay sediments. The median TDS in the Sub-McKay is lower (CHIA, Table 7-9) than springs and ponds (CHIA, Table 7-1) currently used by livestock and wildlife and the availability of water is more consistent. The alluvium has higher TDS and is less reliable than either the McKay Coal or the Sub-McKay.

A concentration of TDS above 7,000 mg/L does not qualify as “extremely saline”. According to generally accepted definitions, “saline” waters have a TDS of 30,000 to 50,000 mg/L, while TDS concentrations over 50,000 mg/L are considered hypersaline. A water with a TDS of 7,000 mg/L would be considered brackish.

There are no “livestock standards” established in Montana. DEQ uses a range of published guideline values to evaluate a water’s support of livestock drinking water use. The statement that the alluvium and Rosebud Coal groundwater do not exceed “livestock standards” is incorrect, even if guideline values are considered instead. As described in the CHIA, Sections 7.2.2 and 7.2.4, both the alluvium and Rosebud Coal groundwater exceed livestock guideline values for several parameters.
WELC-43

- The PHC admits that it is going to destroy various springs (springs 7, 10, and 11) and that other springs may be impacted. However, the PHC provides no information about how these impacts will be reclaimed. Instead, the PHC simply and unlawfully kicks the matter down the road saying, “Mitigation plans will be developed and implemented for all springs that are impacted by mining related activities.” PHC at 27. Pray tell. As the Department has correctly observed elsewhere, the plans must be developed prior to permitting. Further, as noted above, it is not clear how WECO will replace the ecologic function of these springs, given that the Department recognizes that continually pumping and discharging wells are not a mitigation option.

WELC-44

- The PHC’s analysis of aquatic life is wholly inadequate. While Appendix B contains a survey of aquatic life in various intermittent and perennial portions of creeks in the mine area, it contains no analysis of the probable hydrologic impact of the proposed massive mine operation on aquatic life dependent on the scarce water resources in the area. In particular, it contains no analysis of projected increases in salinity and potentially metals, like aluminum, iron, and selenium. The Department has acknowledged that fish and other aquatic species live in West Fork Armells Creek.29 There is no analysis of how the decreased water quantity and the diminished water quality caused by the proposed mine expansion will affect aquatic life. The bland statement that “aquatic life is expected to reestablish in wet areas in the PMT similar to the emergency of aquatic life in the vicinity of the mine when previously dry areas become wet due to climate variations” does not provide any information about when portions of the creek dewatered by mining will reestablish, if ever (especially given compounding impacts of climate change), it does not discuss downstream impact, and it does not explain how the expected increase in numerous pollutants will affect whether and what aquatic life “reestablishes.” The Department must have a trained expert biologist assess this issue, including via consultation with other sections within the Department. Existing analyses indicate that increased salinity and other pollutants from coal mining, as well as dewatering, can adversely impact the health aquatic communities in Montana.30 It also remains unclear why the Department has had WECO collect macroinvertebrates as a metric of stream health when the Department’s Water Planning Bureau does not believe that macroinvertebrates can serve as a reliable indicator of stream health in prairie streams in eastern Montana. Instead, the Department should be having WECO collect and analyze diatoms.

The cost to replace water sources at Area F was not specifically calculated in the bond. Because the replacement source is relatively shallow, and only two sources would be disturbed in the five-year permit term, the cost would be correspondingly small. Up to this point, the DEQ considered this cost to be included in the “Contingency” cost line item. There are over 307,000 dollars in the Area F bond for contingencies. See the response to WELC-38 regarding climate change concerns.

As mining proceeds, some springs may be destroyed or disrupted. These disruptions may or may not be permanent. Livestock and wildlife uses do not occur in active mining areas, and water supplies are provided during reclamation. Sediment ponds and other low areas in reclamation often intermittently contain water which can be utilized by livestock and wildlife. Additionally, WECO frequently installs stock water wells in reclamation fields to facilitate livestock grazing in reclaimed areas. In other mines and other areas of the Rosebud Mine, springs have been known to reappear, often in different locations, as areas are reclaimed. Temporary replacement supplies will be provided for existing uses until the extent and duration of the disruption are known. If a permanent replacement is appropriate, a plan will be developed, based on conditions existing at that time, to fully support existing uses. In DEQ’s decades of experience overseeing and inspecting reclamation at coal mines in Montana, it has been observed that reclaimed areas often contain more reliable water supplies for livestock and wildlife, in both quantity and quality, than existed prior to mining.

The agency action at issue is not a determination of the overall biotic community structure and ambient conditions of the stream reach in order to determine whether the stream is or is not impaired for Clean Water Act 303(d) listing purposes. The stream is listed on the 303(d) List. This action involves the permitting decision and impact assessment with respect to discrete project under MSUMRA. Fish have been documented from West Fork Armells Creek below the confluence with Trail Creek. This is outside the cumulative hydrologic impact area and no impacts to water quantity or quality area anticipated in this reach. DEQ’s Water Quality Assessment Program has stated, “Given the high natural variability of stressors to the macroinvertebrate communities in the ecoregion and lack of response in macroinvertebrate community metrics to human induced change, there is little value utilizing macroinvertebrate communities to measure stream health in this region. This is why water quality assessment methods currently do not use macroinvertebrate metrics in the Northwestern Great Plains ecoregion.” DEQ’s Water Quality Assessment Method [November 2011] at Table A-2. The collection of macroinvertebrates was part of an assessment of the baseline aquatic community in the intermittent wetlands in Area F, and was not intended to be an indicator of stream health. Whether or not a statement is considered “bland” does not affect the factual nature or validity of a statement. According to WECO’s aquatic life expert, “the typical prairie system is a very tolerant group of organisms that can withstand the harsh environmental conditions brought on by potentially drought and low water conditions, warm temperatures, very, very high dissolved solids in the water. Since these are very turbid systems naturally, these organisms have to adapt to those very harsh environmental conditions.” Testimony of David Stagliano, BER 2016-03 Vol IV, p. 255-256. Because the aquatic life in intermittent to
ephemeral streams are naturally adapted to drying and wetting cycles and large changes in salinity it is reasonable to assume that aquatic life will reestablish when post-mine waters reestablish, and that this aquatic life will be of similar composition as the premining population.

There is no planned disturbance within the Horse Creek watershed. The permit area contains 44 acres of that watershed, as it was defined by sections in that area, but the disturbance for Area F is entirely contained within the West Fork Armells Creek watershed. Surface water and groundwater from Area F do not flow towards or discharge to Horse Creek.

**WELC-45**
- The PHC has no analysis of impacts and does not appear to have collected any baseline information (certainly not samples of aquatic life) in Horse Creek, even though the mine will impact that creek. Sarpy Creek, into which Horse Creek flows, is impaired for nutrients requiring a TMDL. Nutrients from blasting could worsen the impairment in Sarpy Creek. Until a TMDL is prepared for Sarpy Creek there can be no affirmative demonstration that the creek can accommodate additional pollution from strip-mining.

**WELC-46**
- The Coal Program cannot make a fully informed material damage analysis until the Water Protection and Permitting sections evaluate whether a discharge permit and a 401 certification can issue. Only then will the Department have fully assessed applicable water quality standards.

An MPDES permit related to Western Energy Area F is being developed. The MPDES permit will go through public comment prior to being issued. No discharges to the waters of the state will be allowed until the MPDES is in place. A CWA § 401 water quality certification is not required as the precondition to the issuance of an MSUMRA permit, which is purely a state-law action. MSUMRA involves a separate and independent assessment of impacts to water quality standards and beneficial uses via the material damage determination process. § 82-4-227[a][3], MCA. As the commenter is well aware, the assessment of impacts to water quality standards from coal mining projects must take place entirely within the four corners of the Written Findings and CHIA.

**WELC-47**
- There does not appear to be any assessment of the impacts of migrating spoils water pollution on groundwater. The science indicates that this pollution does not attenuate in this area and, therefore, will likely adversely affect uses off the mine site as the polluted water migrates, causing material damage.31

Major portions of the PHC (e.g. Section 3.3.2, p. 24), the EIS (e.g. Section 4.8.3.1, p. 532), and the CHIA (e.g. Section 9.6.2, p. 70) are primarily concerned with the effects of spoil water on groundwater. The analysis in the CHIA is conservative in that it does not assume any attenuation of TDS occurs, aside from simple dilution through mixing. Even with this conservative approach, the CHIA analysis demonstrates that material damage is not expected to occur.

**WELC-48**
- There is no analysis let alone affirmative demonstration about how WECo is going to reclaim the groundwater, aside from simply letting it migrate away over the course of centuries.

Groundwater is subject to geochemical processes in a natural system. These processes will eventually result in a chemical equilibrium between the host material of an aquifer and the groundwater contained within it. As the Rosebud Coal is replaced by overburden backfill, that equilibrium is changed. The immediate result is increased TDS due to an increase in soluble ions from previously unsaturated rock. As this increase in TDS is occurring, other geochemical processes are driving the groundwater toward equilibrium with the spoil material. This material is essentially the same as the prior overburden, and the groundwater in the spoil will reach an equilibrium similar to that of the overburden baseline. The process that increases TDS is faster, as it is working on surface salts that are readily soluble. The processes working toward equilibrium include ion exchange, dissolution, precipitation, and microbial action. These processes work much more slowly, and are often working in opposing directions. The mine is required to take steps to prevent contaminants from reaching the groundwater outside the permit boundary, and they monitor a network of wells to verify this. The groundwater that reaches the spoil is coming from the unmined aquifers, and takes on an elevated TDS not because of contamination, but because it is coming to equilibrium.
| WELC-49 | • The PHC does not contain any analysis of the impacts of selenium in spoils affecting ground and surface water, even though it was determined to be a problem in prior discharge permit analyses. Selenium, like several other trace elements, occurs naturally in sediments of the Tongue River member of the Fort Union Formation (Stricker and Ellis, 1999). Baseline concentrations in groundwater occasionally exceed MCLs. Overburden material is tested for pH, electrical conductivity, saturation, major ions, sodium adsorption ratio, nitrate nitrogen, selenium, boron, and molybdenum, as well as a number of other analyses. Material not meeting suitability guidelines is either blended into suitable material or placed well above the projected water table (Permit 17.24.641). No pervasive selenium issues were identified in Area F overburden sampling; thus, selenium is not anticipated to cause material damage in either surface water or groundwater. |
| WELC-50 | • The Department should require any settling ponds to be lined, or require a discharge permit for discharges from seepage from such ponds. Sedimentation ponds must be cleaned out periodically to maintain capacity. It is not practical to clean out a lined pond with standard equipment and practices. The low permeability of most materials in Area F makes lining of ponds unnecessary. In those areas where ponds are situated on more permeable materials, infiltration below the ponds may assist in maintaining a high water table in springs and wetland areas (EIS Section 4.11.4, p. 561). Water contained in sediment ponds is typically lower in dissolved solids than overburden or alluvial groundwater, thus any water infiltrating from sediment ponds to groundwater does not have an adverse impact on groundwater quality. |
| WELC-51 | • The Citizens attach and fully incorporate herein their comments on the Rosebud Mine lease modification EA for expanded mining operations in Areas B and C. The Department must consider these operations in its cumulative hydrologic impact analysis because of cumulative impacts on Armells Creek from dewatering and salinity and other pollutants. Part of Area C was considered for cumulative effects. Portions of Area C outside the West Fork Armells Creek watershed, and all of Area B, do not have any cumulative effect with Area F, as they drain to East Fork Armells Creek, and have been determined to have no impact at the confluence with West Fork Armells Creek. The proposed lease modification areas are outside of the cumulative hydrologic impact area for Area F and have no cumulative impacts with Area F. |

**Bonding**

| WELC-52 | As the Department is aware Westmoreland declared bankruptcy on October 9, 2018, one business day after it made acceptability determination for the Area F mine expansion. Westmoreland’s precarious financial situation was known to the Department when it found the permit acceptable. Despite this knowledge the Department requires Western Energy to post a $13,750,000 bond for Area F. That amount is wholly inadequate, especially when considered in relation to the other active mining areas at the Rosebud mine. In accordance with ARM 17.24.1102, the performance bond amount is the estimated cost to DEQ if it had to perform reclamation, restoration, and abatement work. The amount of reclamation, restoration, and abatement work to be performed is based on the approved maximum disturbance anticipated within the permit term. The amount of bond calculated for Area F is adequate for the disturbance proposed during the five-year permit term and will be adjusted if conditions change during the permit term. It is not appropriate to compare the performance bond amount to the number of acres permitted because not all acres within the permit area are disturbed at one time. With respect to the Commenter’s concerns regarding the Westmoreland bankruptcy, please see response to NPRC-4. |
| WELC-53 | The draft EIS identified three active mining areas at the Rosebud Mine: Area A, Area B and Area C. (Areas D and E are inactive.) Each of those areas has significantly higher bonds per acre than the amount required for Area F. Specifically:  
• Area A is 4,262 acres and has a bond of $32,750,000. That equates to $7,684 per acre.  
• Area B is 6,231 acres and has a bond of $73,650,000. That equates to $11,820 per acre. See response to WELC-52. The commenter is in error to the extent that the commenter contends that the Area F bond is limited to by (or to) the line item calculations which were used to determine the aggregate amount of the bond. Bonds must be construed according to the language of the undertaking itself. Twite v. Western Sur. Co., 176 Mont. 286, 292, 577 P.2d 1219, 1222 (1978); Cook v. Galen, 83 Mont. 334, 342, 272 P. 250, 253. The obligation under the bond is no way restricted to or modified by any bond calculation. The bond in this
• Area C is 9,382 acres and has a bond of $47,300,000. That equates to $5,041 per acre.

Area F is permitted for 6,746 acres. The bond required for area F only equates to $2,038 or less than half of the other active mine areas. A bargain basement bond for an enormous expansion at a coal mine whose future is uncertain and whose current financial situation is precarious is imprudent. That is particularly true for a mine, as is the case at the Rosebud mine, that has a history of water quality and quantity as described. Notably, the bond does not contain any money for any hydrologic reclamation. Thus, while the PHC states that surface water and groundwater resources that are impacted can be reclaimed with deep wells, there is no bonding to back up these promises, rendering them illusory. Moreover, the cost of replacement wells is significant, totally over $100,000 for each well.32 This estimate does not include expenses for removing salinity from water pumped from the deep aquifers.

The level of bonding required by 82-4-223, MCA must be “relative to the degree of disturbance projected by the original permit and annual report.” Under 82-4-221, MCA a permit “must include all lands reasonably anticipated to be mined or otherwise affected during the applicable 5-year period.” A permit lasts for 5-years before requiring renewal and bonding is an integral part of the permit. The areas reasonably anticipated to be disturbed under the Area F permit are 1,292 acres over the 5-year period which is 20 percent of the total permit area (Area F Permit, Exhibit A & G). This equates to $10,641 per acre for bonding (Area F Permit, Exhibit G). As mining progresses past the 5-year period, the bond will be revaluated based on projected mine plan and annual reports with bonding increasing accordingly to projected disturbance under ARM 17.24.1104(1). This will continue to provide sufficient bonding for reclamation as the disturbance footprint is increased.

The amount of bond is the estimated cost to DEQ if it had to perform the reclamation, restoration, and abatement work required under The Montana Strip and Underground Mine Reclamation Act (the “Act”), 82-2-201, MCA and permit if the operator defaulted on its duties. ARM 17.24.1102. The bond is an intricate cost estimate of a large scale, multiple-phase project requiring critical engineering knowledge, skills and abilities specific to mining and reclamation. Specific engineering knowledge, skills, and abilities required in a performance bond calculation include but are not limited to: volumetric modeling, demolition methods and costs, blasting, project overhead and contingency costs and the application or use of multiple industry standard reference documents. Such industry standard reference documents include: (1) OSM 882 bonding guidance document, Handbook for Calculation of Reclamation Bond Amounts; (2) Caterpillar, Performance Handbook; (3) RS Means, heavy Construction Cost Data; (4) Equipment Watch, Cost Reference Guide; and (5) CostMine, Mine and Mill Equipment Cost Guide. The cost of the bond is based on the engineered reclamation plan that requires a detailed review in relation to the above-mentioned guidance documents, methods of analysis, economic analysis, environmental considerations, foresight in mine planning, sound engineering design, and compliance with Administrative Rules of Montana. See ARM 24.183.301(1).

Should the reclamation and bond default to the department, there is no limitation of disbursement of bond funds in the interest of performing the best possible reclamation. Western Energy’s obligations to provide replacement water is unconditional (see id.) and is backed by a bond conditioned for the faithful performance of the requirements set forth in the permit, MSUMRA and the Board’s rules (§ 82-4-223(1), MCA). MSUMRA further directs DEQ to renew permits every five (5) years, at which point DEQ reevaluates and updates reclamation bonds as necessary. §§ 82-4-202(3)(a)(i), 82-4-221(1) and 82-4-223 MCA; ARM case provides an otherwise unconditional undertaking to pay up to and including the full bond amount should the permittee fail to faithfully perform and comply with the requirements as set out in any or all of the permit, the reclamation plan, MSUMRA and its implementing rules.

See also response to WELC-42 regarding funds for replacement of water supplies.
17.24.1104(1). Should Western Energy fail to restore an impacted water supply as required by § 82-4-253, MCA, DEQ could forfeit Western Energy’s bond.

A bond must also be increased, as required by DEQ, “...when the cost of future reclamation, restoration or abatement work increases.” ARM 17.24.1104(2). In addition, should underground mining activities result in the “contamination, diminution, or interruption to a domestic water supply protected under ARM 17.24.903(2). . . the department shall require the operator to obtain additional performance bond” unless repair, compensation, or replacement is completed within 90 days of the occurrence of damage. ARM 17.24.1104(1).

ARM 17.24.901 requires that a domestic water supply affected by underground mining be replaced, and ARM 17.24.301(107) defines “replace adversely affected domestic water supply” (in the context of underground mining) to require temporary and permanent replacement with water “equivalent to premining quantity and quality.”

Western Energy would have been required to submit supplemental information only if the Department determined in advance that “adverse impacts to the hydrologic balance on or off the permit area may occur” (ARM 17.24.314(4)). If, for example, DEQ had found that “the proposed operation may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial or other legitimate purpose[s],” DEQ could have required additional information to evaluate and supplement “plans for remedial and long-term reclamation activities.” ARM 17.24.314(3)(b)(iii) and (4). Additional bonding is required for domestic water sources at the time when mining causes disturbance of the source under ARM 17.24.1104(2). At that time the cost of replacing, repairing, or compensating for lost will be evaluated, costs evaluated as part of the bonding decision will include long term O&M, pumping, and treating. Should the operator repair, replace or reach a compensation agreement with the water source owner within 90 days of disturbance no additional bonding will be required under ARM 17.24.1104(2). In addition, the bond contains a contingency fund in the amount of $307,000 that could be applied to replacement of wells if the need arose.

The Department should also include in the bond a permanent trust fund for operation and maintenance costs associated with all well replacements and continued assurances for other water impacts. This is especially appropriate given that many of the impacts to water will not be fully known for many decades or centuries after mining. The Department established such a bond at Bull Mountains and should do so here as well.

See response to WELC-52 and 53.

Additional bonding is required for domestic water sources at the time when mining causes disturbance of the source under ARM 17.24.1104(2). At that time the cost of replacing, repairing, or compensating for lost will be evaluated, costs evaluated as part of the bonding decision will include long term O&M, pumping, and treating. Should the operator repair, replace or reach a compensation agreement with the water source owner within 90 days of disturbance no additional bonding will be required under ARM 17.24.1104(2). Under 17.24.1116(4)(iv) phase IV bond release or final bond release may not be considered complete until “alternative water sources to replace water supplies that have been adversely affected by mining and reclamation operations have been developed and are functional in accordance with the Act, the rules, and the approved permit.” This allows for retention of the bond and the department maintains jurisdiction until water sources have been restored adequately. The bonding and permit will remain in place, renewed every 5-years with
<table>
<thead>
<tr>
<th>WELC-55</th>
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<td>See response to WELC-52 and 53. The level of bonding required by 82-4-223, MCA must be “relative to the degree of disturbance projected by the original permit and annual report.” Under 82-4-221, MCA a permit “must include all lands reasonably anticipated to be mined or otherwise affected during the applicable 5-year period.” A permit lasts for 5-years before requiring renewal and bonding is an integral part of the permit. The areas reasonably anticipated to be disturbed under the Area F permit is 1,292 acres over the 5-year period which is 20 percent of the total permit area (Area F Permit, Exhibit G). This equates to $10,641 per acre for bonding. As mining progresses past the 5-year period, the bond will be revaluated based on projected mine plan and annual reports with bonding increasing accordingly to projected disturbance under ARM 17.24.1104(1). This will continue to provide sufficient bonding for reclamation as the disturbance footprint is increased. The amount of bond is the estimated cost to the department if it had to perform the reclamation, restoration, and abatement work required under The Montana Strip and Underground Mine Reclamation Act (the “Act”), 82-2-201, MCA and permit if the operator defaulted on its duties. ARM 17.24.1102. The bond is an intricate cost estimate of a large scale, multiple-phase project requiring critical engineering knowledge, skills and abilities specific to mining and reclamation. Specific engineering knowledge, skills, and abilities required in a performance bond calculation include but are not limited to: volumetric modeling, demolition methods and costs, blasting, project overhead and contingency costs and the application or use of multiple industry standard reference documents. Such industry standard reference documents include: (1) OSM 882 bonding guidance document, Handbook for Calculation of Reclamation Bond Amounts; (2) Caterpillar, Performance Handbook; (3) RS Means, heavy Construction Cost Data; (4) Equipment Watch, Cost Reference Guide; and (5) CostMine, Mine and Mill Equipment Cost Guide. The cost of the bond is based on the engineered reclamation plan that requires a detailed review in relation to the above-mentioned guidance documents, methods of analysis, economic analysis, environmental considerations, foresight in mine planning, sound engineering design, and compliance with Administrative Rules of Montana. See ARM 24.183.301(1). Should the reclamation and bond default to the department, there is no limitation of disbursement of bond funds in the interest of performing the best possible reclamation.</td>
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<td>WELC-56</td>
<td>Thank you for carefully considering these comments. The Citizens look forward to fully participating in the ongoing MSUMRA process regarding the proposed expansion of the Rosebud strip mine. Should you have any questions about our comments, please do not hesitate to contact me.</td>
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<td>MISC-1</td>
<td>It’s not at all clear that the Rosebud mine can actually finance clean up of its operations. Allowing it to expand without 100% certainty that it will clean up after itself would be tremendously irresponsible. The DEQ should at a minimum wait for the company to come out of bankruptcy proceedings before allowing it to proceed. As a taxpayer I don't want to be handed the bill for cleaning up Rosebud’s mess. Please withhold their permit until they have set their finance in order. See response to NPRC-4.</td>
</tr>
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<td>MISC-2</td>
<td>How could a company give the state over ten million dollars and then declare an almost two million dollar bankruptcy at the same time? This dishonesty is what the state is supposed to be protecting OUR resources from. It’s the State’s responsibility to stop this madness. Do your job. See response to NPRC-4.</td>
</tr>
<tr>
<td>MISC-3</td>
<td>Hello, I am writing in concern of Western Energy’s request to expand the Rosebud Mine. The requested bond 13.7M is NOT enough to cover the company’s cost to properly &quot;clean&quot; the area’s requested expansion. Across the 6700 acres, this comes out to clean up costs of less than $2000/acre. Not only is this not enough to adequately clean up the mess that has been created from the mine, the company has also filed for bankruptcy. As a constituent and a lifelong Montana resident, I cannot idly sit by and allow another Corporation to destroy our beautiful state, especially when they have shown [through filing for bankruptcy] that they do not have the funds to return the land to a usable state. I understand that the Colestrip mine and power plant employs 300-400 individuals. The mine can change some of those positions into restoration positions to clean up the current acreage they have already allotted. Please do NOT issue an acceptability determination to this mine!!! Respectfully, Maquel Goodhart In accordance with ARM 17.24.1102, the performance bond amount is the estimated cost to DEQ if it had to perform reclamation, restoration, and abatement work. The amount of reclamation, restoration, and abatement work to be performed is based on the approved maximum disturbance anticipated within the permit term. The amount of bond calculated for Area F is adequate for the disturbance proposed during the five-year term and will be adjusted if conditions change during the permit term. It is not appropriate to compare the performance bond amount to the number of acres permitted because not all acres within the permit area are disturbed at one time. Bonds are calculated on a 5-year increment. The bond is not intended to be the entire cost of reclamation at Area F, rather the costs if they implement the first five years of their intended actions. See also response to WELC-52 and 53.</td>
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<td>MISC-4</td>
<td>I oppose the expansion of the Rosebud Mine for a number of reasons: * The company applying for it has declared bankruptcy; * The bond amount is insufficient for reclamation; * Another company will likely purchase the bankrupt company and DEQ hasn’t provided the public any guarantee that a new owner will be scrutinized for their financial ability to reclaim the land; * The International Panel on Climate Change predicts we have 10 years to make major changes in how we conduct ourselves and do business on this planet before we reach the point of no return. Continued mining of fossil fuels is absolute madness and an expansion of a coal mine should not even be contemplated. Thank you for the opportunity to comment. Bond requirements are associated with the permit, and not with the company itself. Any change of ownership does not change the bond requirement. See response to NPRC-4.</td>
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<td>MISC-5</td>
<td>I’m a lifelong Montanan so I know a little about the history of mining here in my state. My middle school took a field trip to the Berkeley pit when I was just a kid. It’s still an unmitigated disaster 20+ years later. Why in the hell would we approve the expansion of a mine that declared bankruptcy? It wasn’t even a surprise or a secret! Please use some common sense here. Montana makes billions from outdoor recreation. Take the states word for it (<a href="https://business.mt.gov/Office-of-Outdoor-Recreation">https://business.mt.gov/Office-of-Outdoor-Recreation</a>) not mine. It’s time we prioritize our environment and our way of life here in this state. Mining is a legacy that Montana should run from. The definition of This is not a substantive comment. See response to NPRC-4. § 82-4-201, MCA provides the requirements for Coal Mining within Montana. Based on current law, if an applicant provides an application that meets the requirements outlined in the law and rules, including a project design with appropriate environmental protections and the provision of an adequate reclamation bond, the law allows companies to mine in the State of Montana.</td>
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<tr>
<td>MISC-6</td>
<td>The proposed coal mine approval adds serious risk to PSE ratepayers because if the $13.7 million cleanup bond does not cover actual cleanup costs PSE will be liable to make up the difference. As reported normal cleanup costs are far in excess of the current bond amount. This agreement should not be made until funds to clean up the existing Colstrip sites are fully secured. The probability that these bankrupt companies will pay their full share of the cleanup cost is very small. There is a long history of bankrupt companies escaping their obligations. I as a PSE ratepayer am affected by this. Willard Westre 15704 SE 44th St Bellevue, WA 98006</td>
</tr>
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<td>MISC-7</td>
<td>I would like to know if the Northern Cheyenne Tribe was notified for this permit and does it fall within the Class I air status the tribe has. I am a member of the NCT.</td>
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<tr>
<td>MISC-8</td>
<td>Per Independent Record article 11/13/18, comments may be submitted through today. I am opposed to expansion of Western Energy’s Rosebud Mine in southeast Montana. My primary objection is to the destruction and/or significant damage to the Rosebud coal aquifer. Given that the Coalstrip Power Station is slowly being shut down, need for additional coal from Rosebud will in the near future be greatly reduced or perhaps nonexistent. In my judgment, it is short-sighted and irresponsible for DEQ to approve any expansion of the Rosebud Mine, which surely will be at the long-term expense of scarce water resources needed by agriculture, communities and the flora and fauna in that area. Global warming may in the next few decades create much dryer conditions at Rosebud and across much of the rest of the state, making the expansion of Rosebud Mine a very poor long-term investment for the citizens of Montana. Ken McLean</td>
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The Department may not issue a permit if information available to the Department indicates that any strip-mine owned by a permit applicant or anyone who owns a portion of the permit applicant is violating an environmental law:

Whenever information available to the department indicates that a 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.

The department may not issue a strip- or underground-coal-mining permit or amendment, other than an incidental boundary revision, to any applicant that finds, after an opportunity for hearing, owns or controls 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 this part.

It has come to the attention of the Conservation Groups that other mines owned by WECO’s parent corporation, Westmoreland Mining, are currently in violation of laws protecting the environment, which precludes issuance of a permit pending the correction of the violations. EPA Enforcement and Compliance History Online (ECHO) site indicates that there are current Clean Water Act violations at this mine, having sent six letters of violation/warning letters to Westmoreland between 2014 and 2016. It does not appear that the Department has taken any other enforcement action to correct his pattern of violations. ECHO further indicates that WECO’s Rosebud Mine has had multiple Clean Water Act violations this year, including violations of effluent limitations for iron and aluminum. Since 2014, the Department has sent four letter of violation/warning letters to WECO, but has taken no other enforcement actions to correct the company’s pattern of violations.

The commenter describes four main points in this supplemental comment:

- A permit cannot be issued to an applicant in violation of applicable air or water quality regulation.
- A permit or amendment cannot be issued to an applicant who has demonstrated a “pattern and practice of violations of environmental laws”.
- East Fork Armells Creek is “…impaired for both iron and aluminum”.
- The applicant’s demonstrated pattern of violations, DEQ’s lack of intervention, and impairment of East Fork Armells Creek is basis for DEQ to “…refuse the Area F expansion application”.

The commenter uses the EPA’s Enforcement and Compliance History Online (ECHO) tool to demonstrate where the Rosebud Mine and the Absaloka Mine have Clean Water Act violations, and the 13 quarter histograms for these sites included along with the comment establish a pattern of violations. ECHO compliance reports are an effective public facing tool to communicate a facilities recent compliance history for NPDES (MPDES in Montana) permits. An ECHO report gives the basic compliance information for the prior 13 quarters, noting significant non-compliance and reportable non-compliance history, a brief description of pollutant-specific exceedances. What ECHO does not provide is a comprehensive history for violations; ECHO is not the tool used by DEQ to track facility violation history, establish a “pattern of violations”, or carry out enforcement for MPDES permits. DEQ uses the Integrated Compliance Information System (ICIS) in several of these functions. ICIS draws from the ICIS database, although there was a reporting lag due to the lapse in appropriations that interrupted federal operations.

Using ICIS, a detailed violation history is available; which includes the violation type, a brief narrative description of the violation, violation code, violation date, detection date, and resolution date. MPDES Permit MT0023965 (Western Energy, Rosebud Mine Areas A through E) identifies 18 violations, three as effluent violations related to a single event in September 2017 at outfall 060, and 15 non-receipt violations at outfall 080 in April 2018. Of these 18 violations within the same 13 quarter compliance history noted by the commenter, 17 have assigned resolution dates with the remainder being part of the April 2018 Outfall 080 non-receipt violation grouping. Further investigation in ICIS indicates that no discharge was reported from this outfall during April 2018, and the lack of a resolution date for this violation is likely just a housekeeping item to be resolved in the database. As a result, there does not seem to be an outstanding or unresolved violation at the Rosebud Mine.

At the Absaloka Mine (MPDES MT0021229), there are numerous violations listed in ICIS and ECHO. Of these violations, 3 are numeric violations on effluent; 497 violations identified are coded as either D80 or D90, which is an overdue discharge monitoring report (DMR) for monitor only and effluent limited parameters, respectively. The numeric violations occurred in March 2016, and were resolved in June of 2016. All remaining 497 violations are listed with a violation date of October 31, 2015, and again are coded with an overdue DMR rather than an effluent limit exceedance. Nearly all D80 and D90 coded violations were resolved on January 21, 2016. The number of overdue DMR submissions with a single violation date is due to numerous outfalls, with numerous monitored and effluent limited parameters, with reporting codes related to non-precipitation driven discharge, precipitation driven discharges related to events less than or equal to a 10-year, 24-hour storm event, and precipitation driven
Armells Creek appears, pursuant to the Department’s draft 2018 Integrated report, to be impaired for both iron and aluminum. By the express terms of 82-4-227(1), MCA, the Department may not approve the proposed Area F expansion of the Rosebud Mine until Westmoreland corrects these violations. Moreover, given the repeated violations, which necessitated ten letters of violation/warning letters in the past four years and the impaired conditions in East Fork Armells Creek, Westmoreland has demonstrated a pattern of violations, which is further basis for the Department to refuse the Area F expansion application. Discharges related to events exceeding the 10-year, 24-hour storm event. Put simply, one late DMR submission for October 2015 is reflected by many line item D80 and D90 code violations. Further investigation in ICIS indicates that no discharges were made in any of the 19 outfalls during October 2015. The commenter points to 82-4-227(11), MCA and ARM 17.24.404(7), quoting “… when the nature and duration of the violations and resulting irreparable damage to the environment indicate an intent...”, implying a “pattern of willful violations” at the Rosebud Mine, and the Absaloka Mine through ECHO reports. The handful of violations recorded are largely attributable to late or incomplete submissions in approximately 6,120 required discharge monitoring reports in the 170 outfalls between the two identified mines (19 outfalls in the Absaloka Mine, 151 outfalls in the Rosebud Mine). The commenter did not include the Savage Mine which is part of the same parent corporate structure, which has no violations in the same compliance history on 5 outfalls (approximately 180 DMR submissions). Where effluent driven violations have occurred, appropriate and necessary enforcement actions including issuance of written communication have been used by DEQ to resolve compliance issues.

The commenter also described that “East Fork Armells Creek appears, pursuant to the Department’s draft 2018 Integrated report, to be impaired for both iron and aluminum.” This is partially correct, in that East Fork Armells Creek is included in the 2018 303(d) list, which is a component of the 2018 Integrated Report. The 303(d) list is a list of impaired waters developed by DEQ and approved by EPA. East Fork Armells Creek is broken into two assessment units or segments. One of these assessment units is from the headwaters of the stream to the mine shops area, which features large portions of the active mining at the Rosebud Mine. The other assessment unit is from the mine shops area to the mouth or confluence with West Fork Armells Creek, forming the mainstem Armells Creek. Both assessment units feature impaired support of designated beneficial use support, however the headwaters to mine shop assessment unit’s impairment to aquatic life support is given the probable cause of “alteration to stream-side or littoral vegetative covers” and probable sources are attributed to “grazing in riparian or shoreline zones”, as the impairment results from habitat modification a TMDL is not required, the water classification is assigned as 4C, and this assessment unit is not included in the 2018 303(d) list. Support of primary contact recreation has not been assessed for this assessment unit. The downstream assessment unit extends from the mine shops area to the mouth, and is largely downstream of active mining in the drainage, with the exception of mining in Stocker Creek which joins East Fork Armells Creek downstream of Colstrip, the power plant, and Castle Rock Lake. Reclamation in Area D and E also drains toward this assessment unit. The downstream assessment unit is included in the 2018 303(d) list; with impairment to aquatic life support due to a number of probable causes including habitat (and stream-side or littoral cover), aluminum, iron, nitrate-nitrite, total nitrogen, and total phosphorus. As the commenter pointed out, this list of probable causes to support of aquatic life impairments includes iron and aluminum. The listed probable sources to the iron and aluminum probable causes for impairment to aquatic life (designated) beneficial use support are listed as “Source Unknown, Agriculture”. This is a common source description when nonpoint sources (including agriculture), local geology and soils may cause or contribute to high levels of a pollutant. Because this assessment unit falls under water quality category 5, a TMDL is required to address factors causing an impairment or threat to the waterbody, and consequently iron and aluminum probable causes of impairment were added in 2018 to the 303(d) list and Draft 2018 Integrated Report. As of the 2018
303(d) list, iron and aluminum in the mine shop to mouth assessment unit of East Fork Armells Creek have not been assigned to a TMDL project, and were identified low TMDL priority. Without a TMDL load allocation, effluent limitations for iron and aluminum are regulated through MPDES permit MT0023965, which pending an appeal of Judge Seeley’s decision affecting this permit, uses a 1999-issued MPDES permit which does not include an effluent limitation for aluminum in any drainage, and uses technology-based effluent limitations for iron. A 2012-issued permit included stringent water quality-based effluent limitations for iron and aluminum for all new outfalls in the East Fork Armells Creek drainage.

To summarize the response to the comment, no unresolved air or water quality violations have been identified in any of the three Westmoreland affiliated mines in current operation in Montana. No pattern of willful violations has been established in any of the three Westmoreland affiliated mines in current operation in Montana. Impairment of designated aquatic life beneficial uses for the assessment unit of East Fork Armells Creek has been assigned probable causes including but not limited to aluminum and iron, of which probable sources identified are typical of nonpoint sources. Regulation of iron and aluminum, as identified by the commenter as concerns for impairment in East Fork Armells Creek was made less stringent in new mining outfalls through litigation, as the 1999-issued permit was made the effective permit.
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<td>WELC-58</td>
<td>The Department may not issue a permit until it determines that the application complies with all requirements of SMCRA and MSUMRA: (6): The department may not approve an application submitted pursuant to ARM 7.24.401(1) unless the application affirmatively demonstrates and the departments written findings confirm, on the basis of information set forth in the application or information otherwise available that is compiled by the department, that: (a) The application is complete and accurate, that the applicant has complied with the Act and rules, and that the applicant has demonstrated reclamation can be accomplished… See Written Findings Nos. 1 and 2. Which state: 1. DEQ found that the Rosebud Area F application, submitted on November 2, 2011, and revised through June 8, 2018, 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). 2. The applicant has demonstrated that reclamation, as required by the Montana Strip and Underground Mine Reclamation Act and implementing rules, can be accomplished under the proposed reclamation plan (see ARM) 17.24.406(a).</td>
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<td>WELC-59</td>
<td>ARM 17.24.405(6). Specifically, a permit is not complete and accurate unless it (11) Whenever information available to the department indicates that a 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. (12) The department may not issue a strip- or underground-coal mining permit or amendment, other than an incidental boundary revision, to any applicant that it finds, after an opportunity for hearing, owns or controls 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 this part. See AVS discussion at Written Findings Nos. 9 and 10. Which state: 9. There are no pending MSUMRA violations for WECO at the Rosebud Coal Mine. 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 4/15/19). 10. 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 4/15/19).</td>
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Mont. Code Ann. §82-4-227(11)-(12)