

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY COAL AND URANIUM PROGRAM DRAFT
CHECKLIST ENVIRONMENTAL ASSESSMENT
FOR SURFACE AND UNDERGROUND MINING PERMIT**

DATE: July 8, 2015

SITE: Rosebud Coal Mine Area B

PERMITTEE: Western Energy Company

CITY/TOWN: Colstrip

PERMIT ID: C1984003B

COUNTY: Rosebud

PROJECT: Amendment AM4

LOCATION: Area B is located in the following:

T1N, R40E; Sections 8, 9, 11, 12, 13, 14, 15, 16 and 17

T1N, R41E; Sections 2, 3, 4, 5, 7, 8, 9, 10, 11, 17 and 18

MINERAL PROPERTY OWNERSHIP (Area B):

Federal State Private County Tribal

SURFACE PROPERTY OWNERSHIP (Area B):

Federal State Private County Tribal

BACKGROUND: Rosebud Mine Area B was originally permitted on January 18, 1978. A total of three amendments to the original permit area have been previously approved. Additionally, the permit area has been adjusted with a couple of incidental boundary changes (surface disturbance only – no additional mining).

TYPE AND PURPOSE OF ACTION: Western Energy Company (Western) applied to the Montana Department of Environmental Quality (DEQ) for an amendment to the Rosebud Mine Area B surface mining permit (the permit). This amendment request proposes the following changes to the permit: a 49 acre or 0.8% increase in area permitted (6,182 to 6,231), a 146 acre or a less than 3% increase in the proposed amount of surface disturbance limit (5,531 to 5,677), 8.6% increase in the minable coal reserve (approximately 12.1 million tons), 306 more acres of coal removal or 8.3% increase in the amount of coal aquifer disturbed (3,686 to 3,992), re-calculation of the performance bond to account for current practices and conditions (increase from \$48,403,696 to \$89,192,142), and changes to the post mine topography (PMT). The additional proposed disturbance and mining would be a continuation of existing operations to the south and east. Performance bond associated with the additional proposed disturbance and mining would be an insignificant portion of the before mentioned bond increase. As coal is removed, the operator would proceed with reclamation according to the requirements of the Reclamation Plan, as described in Section 17.24.313 of the currently approved permit. Topsoil would be removed prior to mining and either direct-hauled to areas graded to the approved PMT or stockpiled. Soil stockpiles would be marked with an identification sign and stockpiles would be protected from erosion. Currently approved permit maps depicting vegetation plans would need to be reviewed and updated as a general course of permit renewal, mid-permit review or an additional minor revision to the permit. Regardless of future permit revisions, the vegetation plan would be monitored over time and adjusted as necessary to achieve successful establishment of plant communities which would support the approved post-mine land use.

N= No Present or No Impact will occur.

Y= Impacts may occur (explain under Potential Impacts).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?</p>	<p>[N] There were no soils identified as fragile, erosive, susceptible to compaction, or unsuitable in the premine soil survey. A majority of the area was previously disturbed through agricultural practices, and the remaining areas are contiguous gently sloping rangeland. No special features or reclamation considerations are present.</p> <p>Soils for reclamation will be handled following currently established mining practices as designated in permit C1984003B of which this action is amending. Two 12 inch soil lifts will be salvaged and used directly on reclamation or stockpiled separately for later use when there are no areas ready for resoiling.</p> <p>Stockpiled soils will be protected from degradation and loss with standard best management practices and seeding with non-noxious species. Prior to redistribution the spoil surface is evaluated for suitability per the DEQ soil and spoil quality guideline. This process aims to ensure there is an adequate rooting zone for targeted species, and aims to leave a useful topography with substrates for establishing diverse and effective vegetation.</p>
<p>2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[Y] <u>Groundwater Hydrology</u></p> <p>Mining of the proposed AM4 amendment would continue removal of overburden and Rosebud coal to the south of existing mining, resulting in an increase of 306 acres (8.3%) of disturbance to the Rosebud coal aquifer in the east part of Area B. Mining has caused and will continue to cause changes to both the quantity and the quality of the groundwater in the mine area.</p> <p>Head decline in the Rosebud coal aquifer, the aquifer most profoundly impacted by mining, would increase in depth and extent with mining proposed in AM4. Modeled head decline in the east pits of Area B at the end of AM4 mining (2026) is predicted to be 110 feet, an increase of some 30 to 40 feet over that modeled in the same location at the end of currently approved mining (2020). An increase of 5 feet head decline in McKay coal is predicted with the addition of AM4 mining. After 50 years of postmining recovery, modeled Rosebud coal head decline remains</p>

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approximately 15 feet greater from AM4 mining than it would from currently approved mining. The aerial extent of decline between the two models is not significant. The steepest decline in head takes place within the permit boundary, with head decline dropping to 5 feet approximately two miles south of the permit boundary.

During mining, overburden from each successive pit is cast into the previous pit and then slowly saturates, mainly from lateral Rosebud coal groundwater moving into the groundwater depression created by the pits, although surface water may also contribute locally. Total dissolved solids (TDS) concentrations in backfill (spoil) aquifers are, on average, greater than that of the Rosebud coal aquifers they replace. The increase is driven by increases in sulfate, calcium, and magnesium dissolved from overburden minerals. Spoil water TDS concentration represents an increase of approximately 2% of the median and 4% of the average TDS concentration in overburden groundwater, and an approximate increase of 41% of the median and 48% of the average TDS concentration of Rosebud coal groundwater. Based on bench tests and paste extract modeling, spoil water quality is expected to improve as upgradient water moves through the spoil and returns to concentrations closer to those of the Rosebud coal. Proposed AM4 mining would increase the amount of spoil and thus the volume of affected water quality. This would also increase the amount of time for spoil water quality to improve in Area B.

Based on the flow direction of groundwater, spoil water in the east part of Area B is expected to move east and southeast toward the coal crop in Rosebud Mine Area E and Big Sky Mine Area A. Saturated thickness of the Rosebud coal seam typically thins toward and becomes dry at the coal crop, lessening the lateral extent and area of impact of poor quality spoil water. Deeper units are protected from vertical leakage by mudstones and silty sandstones with low conductivity.

Although it could take considerable time, the premine groundwater flow gradient is expected to recover because recharge and discharge areas for the Rosebud coal aquifer will not be affected by mining. The hydraulic characteristics of the spoils are similar to that of the Rosebud coal and will facilitate storage and transmission of groundwater between the undisturbed up-gradient and down-gradient coal aquifers.

Groundwater uses outside the permit area include wildlife and livestock drinking water and domestic supply; these uses are expected to be preserved during and after mining. Although the potential for impacts is

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anticipated to be small due to extensive monitoring, private wells that may be affected by diminished supply due to mining drawdown are required to be replaced by the operator. No numeric water quality standards are expected to be exceeded, although, locally, groundwater class may change, typically from Class II to Class III (e.g. some parts of East Fork Armells Creek) due to changes in water level and/or mixing with other water sources including ambient groundwater, sediment pond discharges, or spoil.

[Y] Surface Water Hydrology The drainage system of the greater Colstrip, MT area consists of mainly ephemeral streams which feed into Armells Creek or Rosebud Creek. These two main creeks in turn are minor tributaries to the Yellowstone River. Both Armells Creek and Rosebud Creek have ephemeral, intermittent, and occasional perennial stretches. All of the drainages within the Rosebud Mine permit areas are classified as C-3 with a majority considered C-3 ephemeral.

The proposed increase in mining would result in an expansion of the life of mine disturbance area. The proposed mine cuts would be located near the drainage divide with Rosebud Creek and cut into small tributaries of East Fork Armells Creek. These tributaries have already been partially mined through, and many of the lower reaches of the tributary drainages have already been reclaimed. The existing haul roads that would be used to access the additional proposed mining areas were built along the premine drainage channels, and these roads are proposed to be reclaimed as the postmine tributary channels. The proposed amendment area and mine cut area does not currently contain any springs or stock water ponds.

The proposed amendment would not significantly increase anticipated hydrologic impacts to surface water resources within and adjacent to the area, and the downstream East Fork Armells Creek drainage. Since the amendment area is upstream of current mining activities and would not disturb new drainage basins, the amendment would not result in any further decrease in natural runoff to drainages downstream of the mine during operations. Pre- and proposed postmine drainage basin size, land use, and vegetation are similar enough that no significant change in the quantity of runoff or peak discharge is expected between the currently approved postmine reclamation plans and the proposed postmine reclamation plans. Modeling of storm driven runoff indicates that water quality from flows in well vegetated postmine channels is expected to be similar to premine runoff water quality or contain less sediment. During

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	<p>mining and while vegetation is re-establishing, sediment ponds and other best management practices would treat or retain runoff preventing excess sediment from entering native drainages. Surface water quality from the affected tributaries to East Fork Armells Creek should be similar to previous expectations for postmine water quality with no changes expected for stock or wildlife use.</p> <p>While the proposed postmining topography for the amendment would approximate the premine landscape, there would be some changes in drainage basin size, channel location, and upland topography. The proposed mine plan would include more mining into steeper, more diverse upland and ridge topography. These areas would be reclaimed to less steep terrain with fewer headwater tributaries and reduced topographic diversity. AM4 changes the postmine topography throughout the Area B east permit. The overall distribution of the terrain's aspect would be similar between the proposed PMT and the approved PMT; 39% of the Area B permit area would have north or northeast aspects in both the approved and proposed PMT. The premine permit area landscape had approximately 46% of the area with north or northeast aspects. North aspects aid in the retention and slower release of snow in the winter and spring.</p> <p>The operator would continue to monitor surface water resources surrounding proposed mining to determine quantity and quality characteristics during and after mining. If needed, the operator would be required to provide alternate water supplies to replace water supplies diminished in quantity or quality by mining activities.</p>
<p>3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>[N] Proposed changes would not affect conditions anticipated in the original assessment and as observed during operation of the mine. Dust would be generated during the mining and reclamation operations; however, Western Energy must operate within the confines of the approved Air Quality Permit. The proposed amendment area is not directly influenced by the more stringent air quality requirements of a Class 1 air shed.</p>
<p>4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?</p>	<p>[Y] An additional 146 acres would be disturbed. Vegetation communities would be removed and vegetation resources would be impacted in the short term. Reclamation commitments in the permit are designed to mitigate the vegetative community loss and provide for the approved postmine land uses of grazing and wildlife habitat. One reclamation commitment is for a PMT that approximates the premine condition. Changes proposed to the PMT would help mitigate impacts to</p>

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	<p>vegetation because the changes would better approximate premine conditions.</p> <p>No threatened plants or vascular species of concern are known to inhabit the area.</p>
<p>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>[N] The proposed new disturbance would be adjacent to currently approved operations and would result in approximately 146 acres of additional disturbance into higher cover reserves. No impacts above those addressed in previous environmental assessments would be expected.</p>
<p>6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?</p>	<p>[N] No known listed, threatened or endangered species or important habitat would be impacted by the proposed activities. Six species (Interior least tern, greater sage-grouse, red knot, black-footed ferret and pallid sturgeon) are federally listed threatened, endangered, or candidate species in Rosebud County. The greater sage grouse has been observed during two years during the annual wildlife monitoring at the Rosebud Mine. Both observations were at Sharp-tailed Grouse Lek 20 and consisted of one male each year. The proposed mine expansion would have insignificant impact on sage-grouse as the area contains grasslands and mixed grass/shrublands. No extensive areas of sagebrush habitat is found within the proposed mine expansion. No impacts to the other five listed species are expected as the area does not contain the appropriate habitats (e.g. river habitat for pallid sturgeon) or the habitats are considered marginal for a particular species (e.g. marginal grassland habitat for the Sprague’s pipit).</p> <p>Bald eagles may use the area for hunting and during migration; however, no concentration/roosting habitats or breeding territories have been identified within the Rosebud Mine area. Golden eagles are found throughout the year in the area of the Rosebud Mine; however, no nesting territories are located in or adjacent to the proposed expansion.</p> <p>The proposed reclamation plan would provide suitable postmine habitats for the wildlife species currently utilizing Area B and the surround areas.</p>
<p>7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?</p>	<p>[N] The proposed amendment would result in no adverse effect upon the known cultural, archeological and paleontological resources, and the operator’s approved cultural resource memorandum of agreement (MOA) for Area B protects incidental discoveries. No changes in the Area B MOA are necessary and Western Energy accordingly remains in</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

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	Section 106 compliance for Area B.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[N] Additional mining disturbance would be in a remote area and not located near prominent topographic features. The project area would not be visible from any designated scenic areas. The nearest community, Colstrip, Montana, is located approximately 1.5 air miles from the project area. No noise above that associated with ongoing operations would occur.
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N] The area to be included for mining is surrounded by active mining and reclamation operations. The project is not expected to create demands on limited resources. Coal from this mine area is used to fuel two of the four coal-fired power plants located in Colstrip. Lower quality coal from this mine area is also used to fuel a smaller coal-fired power plant north of Colstrip.
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	[N] Other impacts to environmental resources are not anticipated.

IMPACTS ON THE HUMAN POPULATION

RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] Heavy equipment, trucks, loaders, and blasting would create hazards; however, the operator must comply with all MSHA and OSHA regulations. The operator currently utilizes proper precautions to enhance safety and would continue in the best interest of its employees. Public access would be controlled by the operator. The proposed operation would not add or reduce the affects to human health or safety.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[N] The project would add an additional 12.1 million tons to the minable reserve base. At current rates of consumption, the additional mining would extend the life of the Area B permit by approximately three years. Historically, the area within the permit area and the expanded mine area was pastureland, grazing land, and wildlife habitat. The final reclamation plan is designed to return the area to its previous use, with equal to or greater vegetation production than pre-mining. There would, however, be a short-term loss of vegetative production during mining and reclamation of the proposed additional area.

IMPACTS ON THE HUMAN POPULATION

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<p>13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.</p>	<p>[N] The proposal is not expected to create new jobs; however, if permitted the additional mining would continue jobs presently in place for a longer period of time.</p>
<p>14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?</p>	<p>[Y] The project would create added coal severance tax revenue due to additional coal recovery. The proposed project should not eliminate any tax revenues. It is expected that the mine would sustain production at current levels or at a somewhat increased level and not change the state or local tax base resulting from mine production.</p>
<p>15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?</p>	<p>[N] No changes would occur as a result of the proposed action.</p>
<p>16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?</p>	<p>[N] No locally adopted environmental plans and goals would change as a result of the proposed action.</p>
<p>17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?</p>	<p>[N] The proposed mine area is not located in or adjacent to any wilderness or recreational areas. Recreation potential within the site is limited due to current operations.</p>
<p>18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?</p>	<p>[N] The project is not expected to significantly affect local populations. Neither population increase nor residential decrease would be incurred by approving the project</p>
<p>19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?</p>	<p>[N] Disruption of lifestyles is not expected since there is minimal human activity within or near the proposed project area. State Highway #39 passes within visual observation of the proposed mining. No changes from currently approved operations would occur.</p>

IMPACTS ON THE HUMAN POPULATION	
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<p>20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?</p>	[N]
<p>21. PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.</p>	[N]
<p>22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.</p>	[N]
<p>23. PRIVATE PROPERTY IMPACTS: Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.</p>	[Y] DEQ has a level of discretion in its permitting decisions.
<p>24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:</p>	[N] No other social and economic circumstances would be expected.

25. Alternatives Considered:

- a) No Action: Under the “No Action” alternative, DEQ would deny approval of additional mining. This alternative would decrease the amount of disturbance, decrease the amount of coal produced and thereby, shorten the potential life of the mine by limiting development to the currently approved mine area. Additional mining would not be conducted. The mineral owners and mine operator would not utilize the resource. The potential use of this coal reserve would not be realized.
- b) Approval: If approved, an estimated 12,100,000 tons of recoverable coal would be added to the mine plan and extend the life of the Area B permit by approximately three years. An additional 146 acres of surface area and 306 acres of coal aquifer would be affected by mining.
- c) Approval with Modification: DEQ found no need to modify the proposed revision from what was presented in the amendment application.

26. Public Involvement: Availability of this Environmental Assessment was published in:

The availability of the EA was included in the Acceptability Notice, anticipated to be published in the Billings Gazette on July 10 and 17.

27. Other Governmental Agencies with Jurisdiction: Other agencies with jurisdiction include Office of Surface Mining Reclamation and Enforcement, Bureau of Land Management, US Fish and Wildlife Service, Montana Fish, Wildlife and Parks, Montana Department of Natural Resources, and Rosebud County.

28. Magnitude and Significance of Potential Impacts: The magnitude of impacts would be small given the size of additional disturbance. Potential impacts would be insignificant given requirements for reclamation of all disturbances and the reclamation performance bond.

29. Cumulative Effects: None

Recommendation for Further Environmental Analysis:

- EIS
- More Detailed EA
- No Further Analysis

EA Checklist Prepared By: Angela McDannel-Groundwater Hydrologist, Emily Hinz-Surface Water Hydrologist, Chris Yde-Program Supervisor, Bob Smith-Permit Coordinator, Peter Mahrt-Engineer