

Executive Summary

This Executive Summary provides an overview of the draft Environmental Impact Statement (EIS) for the proposed amendment to Spring Creek Mine's (SCM) Surface Mine Permit known as AM5. The draft EIS describes the resources potentially affected by the proposed amendment activities. This summary does not provide all the information contained in the draft EIS. If more detailed information is desired, please refer to the draft EIS, its appendices, and the reports referenced within.

This EIS presents descriptions of the Proposed Action and alternatives, including the No Action alternative and agency modified alternative (Chapter 2); descriptions of the affected environment for all potentially affected resources (Chapter 3); and an analysis of the impacts of the alternatives.

Purpose and Need

The Montana Department of Environmental Quality's (DEQ) purpose and need in conducting the environmental review is to act upon SCM's proposal for an amendment to their existing Surface Mining Permit for a transportation corridor in compliance with the Montana Strip and Underground Mine Reclamation Act (MSUMRA), Section 82-4-201, *et seq.*, MCA.

The Montana Environmental Policy Act (MEPA) (Section 75-1-201, *et seq.*, MCA) requires an environmental review of actions taken by the State of Montana that may significantly affect the quality of the human environment. This EIS was prepared to fulfill MEPA requirements. DEQ will decide which alternative should be approved in DEQ's Written Findings based on information provided in the amendment application and the analysis in the final EIS. DEQ's Written Findings would be published no sooner than 15 days after publication of the final EIS. The final EIS will include comments received on the draft EIS and the agency's responses to substantive comments.

Project Location and History

The SCM is a surface coal mine located in Big Horn County near the Tongue River Reservoir north of Decker, Montana (**Figure ES-1**). Construction of the SCM began in April 1979, and production began in December 1980. The mine has been in active production since December 1980. The AM5 permit amendment area extends south of the existing SCM permit boundary to the Wyoming border. On December 30, 2015, DEQ received an amendment application (AM5) for Surface Mining Permit C1979012 from Cloud Peak Energy (CPE). AM5 would add approximately 4,334 acres to the approved permit area for the purpose of a transportation corridor south of the existing permit boundary. The transportation corridor would provide a means to move coal from the Youngs Creek Mine (YCM) in Wyoming to the SCM for processing.

No Action Alternative

MEPA requires an analysis of the No Action Alternative for all environmental reviews that include an alternatives analysis. The No Action Alternative provides a comparison of environmental conditions without the proposal and establishes a baseline for evaluating the Proposed Action and the other alternatives. MEPA requires the consideration of the No Action Alternative, even if it fails to meet the purpose and need or would not be able to satisfy environmental permitting standards.

Under the No Action Alternative, the AM5 amendment area would not be added to SCM's Surface Mining Permit. SCM would continue to operate the mine and process coal produced within their current permit area. At an average production rate of approximately 18 million tons per year from coal mined at SCM, the mine life is expected to last up to 12 years, or until approximately 2030 (SCM Permit 17.24.303(1)(s)). It is possible that coal from other mines could continue to be processed at SCM beyond 2030, and future leases, if granted, may extend the anticipated life of mine. The reclamation plan filed with SCM's current Surface Mine Permit would be followed at the conclusion of mining activity.

Proposed Action Alternative (AM5)

SCM has submitted an amendment application for Surface Mining Permit C1979012. This amendment application, referred to as AM5, is for a transportation corridor, contained entirely within Montana, which would extend the permit boundary of the SCM to the State of Montana border. This proposed transportation corridor would allow for connecting SCM with the YCM in Wyoming. The addition of the proposed transportation corridor would allow SCM to extend the life of the mine to 2030 with reclamation completed by 2034. SCM has proposed a haul road and associated high voltage distribution line as the Proposed Action for the transportation corridor. As previously stated, the haul road would primarily be used to transport coal from a currently permitted mine, YCM, in Wyoming to the processing facility at SCM where the coal would be processed and then transported off site under the existing SCM permit. The AM5 area is not an expansion of the area to be mined.

The proposed AM5 area encompasses approximately 4,334 acres extending south of the existing mine permit boundary (**Figure ES-1**). The area to be disturbed includes the following project components: the road alignment, a high voltage distribution line, soil stockpiles, sediment and settling ponds, other sediment control features, culverts, fences, and appropriate safety features.

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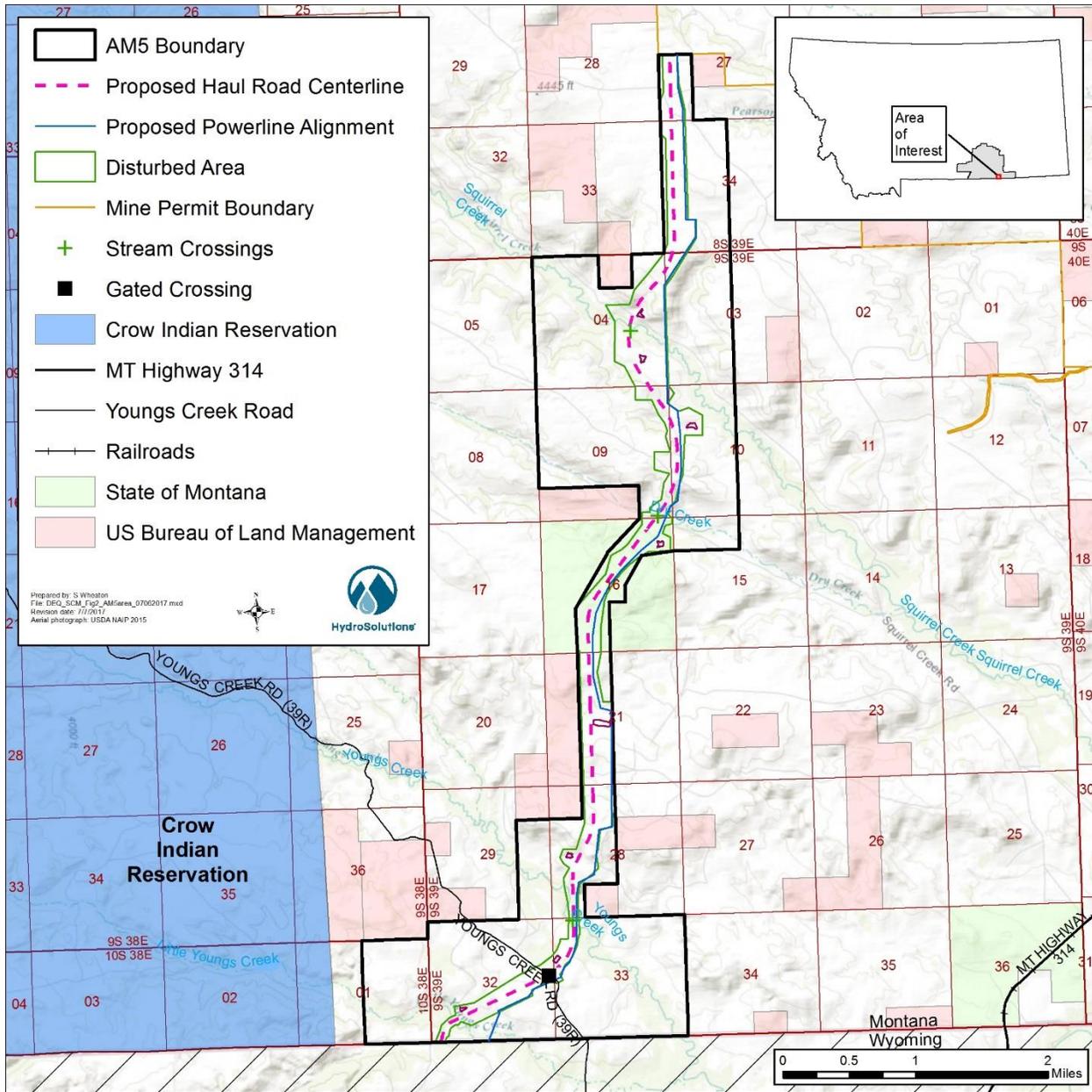


Figure ES-1. Location of the AM5 permit area.

The SCM permit area currently covers approximately 13,460 acres. The life of the mine under its most recent permit is estimated at 18 years with mining operations expected to conclude by 2030 and reclamation to be completed by 2034. The anticipated annual production from the entire SCM property ranges from 10 million tons to 30 million tons. If AM5 is approved, this range would include coal tonnage brought to SCM from other properties via the AM5 haul road. SCM estimates that of the 4,334 acres within the AM5 area, approximately 970 acres would be disturbed to complete the roadway and associated features. Approximately 303 acres of the disturbed area would constitute the

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roadway footprint and would be actively used during the life of the project. **Figure ES-1** shows the proposed road centerline and high voltage distribution line alignments. The road crossing at County Road 39R (Youngs Creek Road) would be controlled with a gate system when mine traffic crosses the intersection.

Road Design and Construction

The road alignment would be approximately nine miles long and would have a driving width of 120 feet. The largest vehicles anticipated to be used on the road would be 240-ton class haul trucks that require a 12-foot high by 25-foot wide safety berm (See Section 2.3.6). An above-ground 34.5 kilovolt (kV) high voltage distribution line would roughly parallel the road alignment to the east (Section 2.3.5).

SCM anticipates that approximately 6.5 million cubic yards of cut and fill would be necessary over the nine-mile alignment (Ackerman 2017f). To accommodate the 2:1 allowable slope for construction equipment to operate on the berms safely, the width of the base of the road structure will vary from 250 to 800 feet wide. Average width of the road base would be approximately 296 feet. The total acreage disturbed or encompassed by the road bed would be approximately 303 acres (**Table 2.3-1**). The road earthwork was designed to allow for a balance between cut and total fill needed. The road will be constructed by cutting and filling overburden to the grades and lines required for safe hauling by using the mine equipment fleet available at SCM or by a contractor. All applicable regulations would be followed during all phases of construction, operation, and reclamation to minimize surface disturbance, sediment delivery to streams, noise and dust, and impacts to wildlife, and to maximize vegetation recovery.

There are five named waterways that intersect the AM5 permit area. Proceeding from north to south these are: Pearson Creek, Squirrel Creek, Dry Creek, Youngs Creek, and Little Youngs Creek. In addition to these named waterways, there are several tributary drainages within the AM5 boundary. The proposed haul road alignment would cross three perennial streams (Squirrel, Youngs, and Little Youngs Creeks) and one major ephemeral stream (Dry Creek). The proposed alignment would not intersect Pearson Creek. The culvert crossings of Youngs Creek inside of the AM5 would have a shaped concrete channel that would concentrate low flows ensuring flowing water (when available) to minimize adverse impacts to aquatic life.

The road plans call for 35 culverts to direct runoff under the roadway at 31 crossing sites (SCM 2015). The culverts planned range in diameter from 12 inches (1 foot) to 264 inches (22 feet). Thirty of the culverts are five feet in diameter or smaller and five range in size from 10 to 22 feet (**Appendix A**). The largest culverts would be placed at the major stream crossings. Details on the sediment and drainage controls during construction and operation are provided in Section 2.3.

Transport Operations

SCM proposes to transport coal along the roadway using the same 240-ton class haul trucks it operates within the mine, currently Komatsu 830E AC drive trucks. These trucks are approximately 22 feet tall and 24 feet wide and have a total empty vehicle weight of 362,000 pounds (181 tons) (Komatsu 2009). The Komatsu trucks have a maximum speed of 40 mph and run on diesel fuel and an electric drive that enhances traction and braking power. The nominal payload for a Komatsu 830E AC is 488,650 pounds (244.3 tons) (Komatsu 2009). SCM has six Komatsu 830E AC trucks that would be tasked with daily hauling. Additional support traffic along the route would include supervisor and crew transportation, scrapers, graders, water trucks for dust control, maintenance and blasting equipment, and lube and fuel trucks (Ackerman 2017b, 2017h). SCM proposes to haul 24 hours a day, seven days a week, 365 days per year (Ackerman 2017g). Average daily traffic for the haul route would include four haul trucks per hour and one to two support vehicles per hour for a total of approximately 120 to 145 vehicle trips per day (Maunder 2017).

Reclamation

SCM estimates that the proposed haul road would be closed sometime in 2030 or 2031. Upon closure of the road, the disturbed area would be reclaimed using a process identical to mined land reclamation described in SCM's current permit. Upon abandonment, the haul road would be graded to the final contours as shown on the approved postmining contour map, provided as Plate 4 in the AM5 application. All culverts and bridges would be removed as part of the restoration of the natural drainage pattern. Adequate measures such as, but not limited to, cross drains, dikes, or water bars will be used to prevent erosion during reclamation.

SCM has included information on how the postmine topography would be constructed, soiled, and seeded to benefit wildlife in their AM5 application. In general, reseeded would be intended to fit the planned post-reclamation land use. These plans are part of the mine reclamation plan, but would apply to the AM5 area as well. In addition, SCM has an approved weed control plan on file with Big Horn County Weed Coordinator (ARM 7.22.2153).

In all drainages determined to be Alluvial Valley Floors (AVF), alluvial soils will be salvaged. Construction across the AVFs in Squirrel Creek, Youngs Creek, and Little Youngs Creek will consist of removal and salvage of alluvial topsoil (~12 inches), placement of a geosynthetic separation fabric above the alluvium, then construction of the haul road using material excavated from the road corridor on the adjacent valley sides. There are no alluvial soils identified in the Dry Creek area; therefore, Dry Creek will be constructed and reclaimed as any other upland ephemeral drainage.

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Areas disturbed in construction of support facilities such as roads, high voltage distribution line, culverts, and fences would not be completely reclaimed until the conclusion of mining and coal processing operations. Once the AM5 roadway is no longer in use, structures that exist above the post-mining topography (PMT) elevations would be removed and all areas graded to approved contours.

SCM conducts a number of regular mining-related, environmental monitoring and data-gathering activities, as approved by the DEQ, outside of the SCM permit boundary, most of which require no significant disturbance. Resource-specific post-closure monitoring plans for groundwater, surface water, vegetation, wildlife, soils, and weather are contained in the permit. These activities would continue on all areas within the AM5 area until final bond release.

Agency Modified Alternative

Under this alternative DEQ would require SCM to implement additional environmental protection measures that are above and beyond the requirements of MSUMRA. These measures are conceptual in nature and were designed to minimize environmental effects and to address issues identified during scoping and interagency consultation.

The Agency Modified Alternative (AMA) includes mitigations developed in cooperation with the Sage Grouse Program, the DEQ Coal Bureau, and SCM (**Appendix B**). Each mitigation measure was developed to address specific environmental impacts and to avoid, minimize, rectify, or eliminate these impacts during the three stages of the Proposed Action - construction, operation, and reclamation. Mitigations focused on reducing noise, minimizing impacts to greater sage-grouse and other wildlife, complying with Executive Orders 12-2015 and 21-2015, protecting cultural resources, improving public safety, and reducing impacts to waterways, vegetation, and wetland habitats. Section 2.4 describes the mitigations in greater detail and **Table 2.4-1** summarizes each mitigation, its resource area focus, and which measures SCM has voluntarily agreed to implement.

Additional Mitigation Planning

The Sage Grouse Program worked with the DEQ and SCM to review the proposed AM5 amendment for consistency with Executive Order 12-2015. During project discussions conducted in early February 2018, SCM provided the Sage Grouse Program with a list, detailing efforts during project planning to select a disturbance corridor that, to the extent possible, avoided or minimized potential impacts to greater sage-grouse and their habitats during construction, operation, and reclamation. This approach was also used to balance impacts to overlapping species' needs (e.g., sage-grouse lekking and nesting raptors) to the extent practicable. Examples of these efforts, and additional voluntary actions that SCM has already implemented or has made commitments to implement on behalf of sage-grouse and their habitat, are provided in **Appendix B**. In

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addition to these actions, all prior DEQ permit commitments would be adhered to throughout the life of the project, including monitoring and reporting requirements.

In addition to its State permit requirements for wildlife habitat replacement, the SCM had previously developed a separate Habitat Recovery and Replacement Plan (HRRP) for sage-grouse (refer to State Mining Permit C1979012; HRRP and Section 17.24.312). The HRRP and SCM's current permit document outline multiple additional commitments to enhancing sage-grouse habitats. Those commitments are in addition to compensatory mitigation outlined below for the proposed haul road project.

Compensatory Mitigation

A collaborative process between the Sage Grouse Program and SCM identified the level of compensatory mitigation obligation for the proposed AM5 haul road project. The parties agreed to develop a compensatory mitigation approach specific to this project. Details on the rationale and specifics of this approach are provided in **Section 2.4** and **Appendix B**.

SCM committed to a compensatory mitigation obligation of \$1,707,353.05 to be deposited in the Montana Sage Grouse Stewardship Fund (see MCA 76-22-111((1)(a)(ii)). Funds would be deposited after confirmation of approval for both the permit amendment and the compensatory mitigation plan, and before construction begins.

The MSGOT and the Sage Grouse Program would disburse these funds through the Stewardship Account granting process to conserve habitat and sage-grouse populations through offsite mitigation. Offsite mitigation is preferred in this case due to the existing mining activity in the immediate area and the new addition of the haul road. Any benefit of onsite mitigation would be negated until such activities were completed and disturbed lands fully reclaimed. Greater conservation benefits to sage-grouse can be secured offsite.

Issues of Concern

From the public involvement, two relevant issues were identified that should be addressed through the alternatives analysis process for the AM5 EIS – (1) the effects of the construction and operation of the transportation corridor on surface water and groundwater quantity and quality; and (2) the effects of construction and operation on area wildlife, specifically greater sage-grouse. These issues will be evaluated in detail to address impacts to resources and to help determine reasonable alternatives for the permit amendment, including the Proposed Action. The specific components of the two relevant issues are:

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Issue 1: effects on quantity and quality of surface water and groundwater resources

Issue 2: effects of construction and operation on wildlife

Some of the mitigation measures proposed are outside DEQ's legal purview under MEPA. Therefore, DEQ's ability to require such measures may be limited. The interagency review by the Sage Grouse Program identified mitigations that would improve compliance with Executive Orders 12-2015 and 21-2015. There are also instances in which mitigation is possible but does not fall within the scope of any government laws or regulations. In these situations, applicants have the discretion to decide whether or not to employ mitigating measures.

Alternatives Considered and Dismissed

Under MEPA, a reasonable alternative is one that is practical, technically possible, and economically feasible. In addition, any alternative under consideration must be able to meet the purpose and need of the Proposed Action. During scoping, alternatives to the Proposed Action were suggested and discussed by agency representatives and SCM. Each alternative and the reason for dismissal is described in Section 2.6. The alternatives dismissed include: 1) a slurry pipeline, 2) a conveyor system, 3) a railroad spur, 4) using existing public roadways, 5) several alternative alignments near the proposed alignment, and 6) alternative culvert designs. Each alternative or alternative component was considered and eliminated from detailed study for a variety of reasons including operational feasibility, increased environmental consequences, and failure to meet the purpose and need of the project.

Summary of Impacts

This EIS discloses and analyzes the environmental consequences that may result from selection and implementation of the Proposed Action and alternatives described in Chapter 2. The more substantive consequences are presented in **Tables ES-1, ES-2, and ES-3** below. Detailed resource impacts analyses are provided in Chapter 3 (primary impacts) and Chapter 4 (cumulative and secondary impacts).

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Table ES-1. Summary of Primary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Geology and Minerals	No substantive impacts anticipated.	Approximately 6.5 million cubic yards of material will be removed from cuts in the AM5 area and used as fill for the haul road bed. When replaced there will be some changes to the physical and chemical nature of the geologic material. Some changes to bedrock and cliff faces will not be reclaimable. No impacts to mineral resources are anticipated because the quality of the coal is less than what is considered marketable.	No aspect of the AMA would reduce or alter the volume disturbed or how it would be reclaimed.
Soils and Reclamation	No substantive impacts anticipated.	Loss of up to 970 acres of land temporarily removed from the productive soil base for the duration of the project.	Non-targeted mitigations related to the reduction of soil disturbances would have minor reduction of impacts to soils, but all other aspects of the Proposed Action would persist.
Surface and Groundwater	No substantive impacts anticipated.	Straightening naturally sinuous stream channels and the alteration of channel gradients may locally affect stream velocities and channel hydraulics and sediment transport equilibrium in the reaches captured by the proposed culverts. Compaction of valley bottom soils from large fill placement may impede shallow groundwater flow.	Other primary impacts would remain the same as those described for the Proposed Action.
Vegetation and Wetlands	The Thunder Basin CI/CP includes removal of 800 acres of conifers and revegetating those areas with shrubland and native grassland species. No other substantive impacts	Loss of up to 568 acres of shrublands for the duration of the project Loss of 13.7 acres of drainage bottom (potential wetland) for the duration of the project	No aspect of the AMA would reduce or alter the acreages disturbed.

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Table ES-1. Summary of Primary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
	anticipated in the absence of the AM5 corridor.	Increased potential for spread of noxious weeds because of widespread surface disturbance.	
Wildlife	No substantive impacts anticipated. The Thunder Basin CI/CP includes several actions that may benefit wildlife in and around the AM5 area, but most are located outside of the permit boundary.	Habitat loss of 960 acres for the duration of the project. Permanent loss of sandstone outcrops, clay cliff faces, and other topographic features. Displacement of wildlife species using the AM5 permit area. Potential loss of some individuals due to roadkill, collisions with powerlines and fences, and destruction of habitat. Habitat fragmentation for the duration of the project which may cause reduced fitness.	Potential predation from perching raptors would be reduced if the high voltage distribution line is buried. The noise reduction aspects of the AMA would lessen overall impacts to wildlife during construction and reclamation. The proposed mitigation plan (Appendix B) expands on the items listed in Table 2.4-1 and includes compensatory, off-site mitigation using ratios based on vegetation types and their habitat value.
Aquatics	No substantive impacts anticipated.	Loss of native stream habitat in three perennial streams (Squirrel, Youngs, and Little Youngs Creeks) and in one ephemeral stream (Dry Creek) for the life of the project. Aquatic and riparian habitat replaced by underground conveyance (culverts under road fill). Potential interruption of aquatic organisms and native fish migration both up and downstream of each culvert. Potential changes to upstream fish communities due to lack of connection.	Impacts would be the same as the Proposed Action.

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Table ES-1. Summary of Primary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
		Shading may reduce stream temperatures locally Increased gradient may increase erosion locally.	
Cultural Resources	No substantive impacts anticipated.	No substantive impacts anticipated	No substantive impacts anticipated.
Socioeconomics	No substantive impacts anticipated.	Minor increase in employment opportunities. Minor impacts from the predicted 1.9 percent population increase, including impacts to schools, social services and housing	If limitations of construction hours are imposed, there may be changes to employment as the project timeline may be extended, but there would be fewer hours to work during seasonal restrictions.
Transportation and Public Safety	No substantive impacts anticipated.	Level of impact to Youngs Creek Road can be considered minimal due to low traffic volumes. Minor concerns were noted related to safety and visibility of the crossing.	Level of impact to Youngs Creek Road can still be considered minimal due to low traffic volumes. The AMA includes crossing enhancements that address the safety concerns of the proposed action alternative.
Land Use	No substantive impacts anticipated.	The haul road would cross and interrupt existing grazing lands and areas identified as Prime Farmland if Irrigated and Farmland of Statewide Importance and these areas would be taken out of production.	If fencing is incorporated along the haul road alignment, grazing lands and farmland would still be disturbed, but fencing could be used to minimize the amount of disturbance to these uses
Visual Resources	No substantive impacts anticipated.	Physical and visual modification and disruption of native landforms and vegetation pattern. All non-daylight activities would be visible, the result of mobile and stationary lighting and dust illumination. The remote location would minimize the number of people affected by	Limiting hours of construction in deference to wildlife (greater sage-grouse) would largely eliminate the impact from lighting. No aspect of AMA would materially reduce the area of disturbance.

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Table ES-1. Summary of Primary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
		these disturbances, but wildlife would be affected.	
Noise	No substantive impacts anticipated	Construction and reclamation activities would cause short-term noise impacts, and exceed the EPA day-night L _{dn} 55 dBA guideline at the closest residential receptor (R1). The L ₅₀ noise levels will exceed the EO stipulation L ₅₀ +10 dBA above baseline noise at nine sage-grouse leks. The long-term haul truck operations will change the acoustical environment, but are not predicted to exceed the EO stipulation L ₅₀ +10 dBA above baseline noise at any of the sage-grouse leks evaluated.	The proposed AMA mitigations would minimize but not eliminate all the noise of the construction or reclamation equipment. It is unlikely that the AMA construction/reclamation mitigations would reduce the noise to less than 10 dBA above ambient at six leks. The proposed AMA noise operation mitigations would not eliminate all the noise. Some changes to ambient noise levels may be noticeable.
Air Quality	No substantive impacts anticipated	Increase in up to a maximum of 246.7 tons per year of fugitive dust (PM ₁₀) occurring during the operation phase.	Non-targeted mitigations related to the reduction of soil disturbances would have localized minor reductions in fugitive dust emissions from wind erosion, but all other aspects of the Proposed Action would persist.

The following table is a summary of the secondary impacts discussions in Section 4.5. Please see the resource specific subsections for more details on the rationale for these impacts.

Table ES-2. Summary of Secondary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Geology and Minerals	No substantive impacts anticipated to geology in the absence of the AM5 corridor development. Coal-bed	No substantive impacts anticipated.	No aspect of the AMA would reduce or alter the acreages disturbed.

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Table ES-2. Summary of Secondary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
	methane development may be more likely if economic conditions change.		
Soils and Reclamation	No substantive impacts anticipated.	Potential for a slight increase in sediment loading downstream. BMPs and regulatory requirements would minimize this potential.	Non-targeted mitigations related to the reduction of soil disturbances would have a minor reduction in impacts to sediment loading, but all other aspects of the Proposed Action would persist.
Surface and Groundwater	No substantive impacts anticipated unless coal-bed methane or other resource development occurs.	Potential for a slight increase in sediment loading downstream. BMPs and regulatory requirements would minimize this potential.	Impacts would be the same as the Proposed Action.
Vegetation and Wetlands	The Thunder Basin CI/CP would replace 800 acres of conifers with sagebrush or grassland which would be beneficial once established. No other substantive impacts anticipated.	Potential long-term (>15 years) recovery required for up to 568 acres in the disturbed area, including the 165 acres of shrublands in the road footprint. No long-term effects anticipated for drainage bottom habitats (potential wetland) after reclamation.	No aspect of the AMA would reduce or alter the acreages disturbed.
Wildlife	No substantive impacts anticipated beyond those described under Vegetation and Wetlands.	Lost carrying capacity caused by direct habitat loss and avoidance of the AM5 area. Reduction in breeding success and individual and population fitness due to noise effects. Decreased population abundance or density of breeding individuals in habitats adjacent to the road. Higher wildlife mortality, lower reproduction rates, ultimately smaller populations and overall lower population viability during life of the project and some recovery period after.	The AMA has a number of measures to reduce project-caused noise. Therefore, there would be fewer effects to wildlife resulting from noise. Displacement, reduction in carrying capacity, reduced breeding success, and reduced population fitness would all be lessened to some extent. The AMA would lessen overall impacts to wildlife. If high voltage distribution lines are buried, secondary impacts from predation and behavioral alterations would be reduced.

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Table ES-2. Summary of Secondary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
		<p>Avoidance and abandonment of active leks by greater sage grouse due to increased activity in the area.</p> <p>Reduced populations of greater sage-grouse resulting from avoidance of elevated structures such as high voltage distribution lines and light poles or resulting from construction noise which exceeds 10 dBA above background.</p> <p>Reduced populations of greater sage-grouse resulting from fragmentation of habitats to a level no longer capable of supporting viable populations.</p>	<p>The approved mitigation plan would reduce secondary impacts to greater sage-grouse by providing offsite habitat improvements.</p>
Aquatics	No substantive impacts anticipated in the absence of the AM5 corridor development.	<p>Energy dissipation structures may “catch” sediments and reduce sediment transport downstream.</p> <p>Once reclamation is completed, aquatic habitat and stream connectivity is expected to recover fully within 2-5 years.</p>	<p>Impacts would be the same as the Proposed Action.</p>
Cultural Resources	No substantive impacts anticipated	No substantive impacts anticipated	No substantive impacts anticipated
Socioeconomics	No substantive impacts anticipated.	No secondary impacts to socioeconomics are anticipated.	No secondary impacts to socioeconomics are anticipated.
Transportation and Public Safety	No substantive impacts anticipated.	No substantive impacts anticipated.	No substantive impacts anticipated.
Land Use	No substantive impacts anticipated.	<p>Grazing land, Prime Farmland if Irrigated and Farmland of Statewide Importance would be reduced and taken out of production while the haul road and constructed and in use.</p>	<p>Impacts from Proposed Action related to loss of production would be the same. Fencing could be used to minimize disturbance to these land uses.</p>

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Table ES-2. Summary of Secondary Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Visual Resources	No substantive impacts anticipated.	Potential long-term (>15 years) recovery of native vegetation required for up to 568 acres in the disturbed area, including 165 acres of shrub lands in the road foot print. No long-term effects anticipated for bottomlands and drainages. Once the haul road section (footprint) is removed and blended back to existing grades.	No aspect of AMA would materially reduce the area of disturbance.
Noise	No substantive impacts anticipated.	Annoyance is the primary human secondary impact due to intruding noise. Possible secondary effects include stress reactions, sleep interference, efficiency reduction and fatigue. Construction, operational and reclamation noise will be audible at the two residences located within 1.5 miles of the haul road. Although some animals habituate to new noise sources (e.g., big game species), secondary impacts to wildlife occur when noise interferes with auditory signals such as breeding (e.g., sage-grouse) or communication (e.g., raptors and songbirds), causing displacement and/or nest abandonment.	The proposed AMA noise mitigations would reduce, but not eliminate the construction and reclamation noise, and therefore, secondary impacts may still exist. However, noise level measurements (monitoring) during phases of the AM5 project can confirm that noise levels are mitigated to 10 dBA below existing ambient conditions, to reduce wildlife noise impacts.
Air Quality	No substantive impacts anticipated	Slight increase in deposition of fugitive dust on water, soil, and vegetation.	No substantive impacts over those of the Proposed Action anticipated.

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The following table is a summary of the cumulative impacts discussions in Section 4.2. Please see the resource specific subsections for more details on the rationale for these impacts.

Table ES-3. Summary of Cumulative Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Geology and Minerals	The disturbances associated with the related future actions described in Section 4.1 would be substantial.	The impacts to geology from proposed surface mining leases are expected to be similar to cut and fill carried out for the haul road in that it involves removal of native geologic material followed by backfilling with a mixture of overburden and spoils material, thus changing the geologic composition and appearance of the disturbed areas.	Cumulative impacts would not be substantially different from the Proposed Action.
Soils and Reclamation	The potential leases described in Section 4.1 would disturb 3,500 acres of soils as part of the coal mine development. Soils would be handled in compliance with MSUMRA and other regulations outlined in Table 3.3.1 , which have been designed to minimize long-term effects to soil productivity and maximize revegetation potential.	The larger leases, including the TR-1, discussed under the related future actions are distant from the AM5 area. It is unlikely that any effects due to those actions would contribute to changes in soils in the AM5 area.	Cumulative impacts would not be substantially different from the Proposed Action.
Surface and Groundwater	There may be impacts to Pearson and South Fork Spring Creeks if the related future actions are approved. This would contribute to cumulative impacts due to diversion of streams in the Upper Tongue River watershed.	There is a possibility that small sediment increases across the Upper Tongue River area from project activities when combined with the related future actions would affect sediment loads, but in the context of the larger watershed the potential is unlikely to be measurable. Regulatory controls would minimize this potential (Table 3.4-1).	Impacts would be the same as the Proposed Action.

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Table ES-3. Summary of Cumulative Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Vegetation and Wetlands	The large area of disturbance included in the proposed leases would cumulatively change the vegetation communities across the area. Because of the uncertainty related to the timing and final project specifics for each of these leases, it is impossible to quantify the total areas of disturbance or types and quantities of vegetation resources potentially affected beyond the acreage estimates provided in Table 4.1.1	Potential impacts due to mosaic of wildlife habitat from the loss of the up to 568 acres of shrublands when added to the over 3,500 acres of other surface disturbing projects proposed in the general vicinity (Table 4.1-1). No cumulative effects anticipated for drainage bottom habitats (potential wetland) after reclamation. Potential for non-native and noxious species to increase their overall presence in the general area due to incremental effects of other nearby projects.	Changes in grazing practices have the potential to improve localized vegetation conditions over time. No other aspect of the AMA would contribute to or reduce cumulative effects to vegetation, wetlands, or noxious weeds.
Wildlife	Removal of coal resources from an additional 3,500 acres of coal leases would result in habitat fragmentation, noise impacts, displacement, reduction in carrying capacity, reduced breeding success, and reduced population fitness.	Potentially, disturbances within the AM5 area would further reduce habitats for wildlife, result in greater habitat fragmentation. Additional wildlife would be lost during construction related activities. Cumulative reduction in habitat for wildlife. Potential for a cumulative reduction in carrying capacity in the SCM area. Wildlife dependent on the habitats which take longer to reclaim (e.g, shrub and woodland habitat) or those that would not be reclaimed (topographic features such as sandstone outcrops and cliff faces) would experience cumulative adverse impacts.	Impacts due to other actions under consideration would be the same as the Proposed Action, but mitigations described under this alternative would reduce impacts within the AM5 project area.

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Table ES-3. Summary of Cumulative Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Aquatics	Loss of aquatic habitats in Pearson and South Fork Spring Creeks in the Upper Tongue River area for the life of the proposed leases would contribute to cumulative effects to aquatic resources.	Loss of aquatic habitats in multiple creeks across the Upper Tongue River area for the life of the proposed leases and AM5 project would contribute to cumulative effects to aquatic resources.	Impacts due to other actions under consideration would be the same as the Proposed Action,
Cultural Resources	Additional surface disturbances would require cultural resource inventories to avoid impacts to these areas.	No substantive impacts anticipated in addition to those described for the No Action.	No substantive impacts anticipated in addition to those described for the No Action.
Socioeconomics	No substantive impacts anticipated.	No substantive impacts anticipated.	No aspect of the AMA would contribute to or reduce cumulative effects to socioeconomics.
Transportation and Public Safety	No substantive impacts anticipated.	No substantive impacts anticipated.	No substantive impacts anticipated
Land Use	No substantive impacts anticipated after required reclamation is completed. Pre-project land uses should be able to be re-established.	No substantive impacts anticipated after required reclamation is completed. Pre-project land uses should be able to be re-established.	No aspect of the AMA would substantially contribute to or reduce cumulative effects to land use.
Visual Resources	No substantive impacts anticipated because of the remoteness of the proposed leases and uncertainty regarding the timing and arrangement of these projects.	Potential negative impacts to mosaic landforms and native vegetation due to loss of up to 568 acres. Minimum cumulative effects anticipated for landforms and native vegetation after complete landscape level reclamation. Potential for non-native species to increase their presence in the local area. This may affect the overall landscape vegetation pattern.	The AMA would have similar impacts as the Proposed Action.

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Table ES-3. Summary of Cumulative Impacts for each of the Alternatives Organized by Resource Area			
Resource	No Action	Proposed Action	Agency Modified Alternative
Noise	Area noise levels would be expected to increase if the proposed future actions are approved. Leaks located closer to the proposed leases would be affected more intensely.	Potential cumulative impacts on noise include conflicts with noise-sensitive receptors, including residences, greater sage grouse, and other noise-sensitive wildlife, such as raptors. These impacts would be intensified where other existing sources have already affected noise levels, such as adjacent SCM operations, oil and gas extraction activities, traffic on local roads and grazing activities. Future actions would also further increase the ambient noise levels, including the addition of a rail spur and additional coal extraction and production in the area.	The proposed AMA noise mitigations would not reduce all the noise of the construction or reclamation activities.
Air Quality	Large areas of surface disturbance would have the potential to contribute PM ₁₀ to the airshed.	Increase in fugitive dust (PM ₁₀) in conjunction with permitted mine emission sources, recreational traffic in the area, wildfire, and other private land activities.	No aspect of the AMA would substantially change cumulative effects to the air quality.

Preferred Alternative

The rules and regulations implementing MEPA (ARM 17.4.617) require agencies to indicate a preferred alternative in the Draft EIS, if one has been identified. DEQ has identified certain aspects of the Agency Modified Alternative as the Preferred Alternative for the reasons discussed below.

During the required consultation process in MEPA, SCM has voluntarily committed to implement mitigations identified in the Agency Modified Alternative which are indicated in bolded rows in Table 2.4-1 of the Draft EIS. These measures are now part of the Preferred Alternative to minimize project impacts to the environment.

DEQ worked closely with the Montana Sage Grouse Habitat Conservation Program (Sage Grouse Program), who implements the Executive Order No. 12-2015 for the sage grouse conservation strategy with guidance from the Montana Sage Grouse Oversight Team (MSGOT). In the initial development of the Agency Modified Alternative, DEQ and the Sage Grouse Program developed on-site mitigation measures for the project. These on-site mitigation measures are shaded green in Table 2.4-1. These on-site measures would be retained in the Agency Modified Alternative, but would not be part of the Preferred Alternative.

While conducting the environmental analysis; DEQ, the Sage Grouse Program, and SCM realized that opportunities for effective, on-site mitigations were limited. Previous anthropogenic disturbances and the cumulative impacts of potential future projects independent of the proposed haul road are already impacting the habitat for greater sage-grouse in the area. Also, any benefits of on-site mitigation would likely be negated by the project itself and the intensive nature and permit duration of the activity now being considered. Therefore, the Sage Grouse Program recommended and the MSGOT approved on April 26, 2018 a plan which includes compensatory mitigation to accomplish off-site mitigation. Plus, SCM voluntarily committed to apply this sage grouse mitigation plan as identified in **Appendix B**.

The Preferred Alternative also includes the following mitigations:

- Blasting: Limit to daytime hours and comply with the requirements of ARM 17.24.624 and 17.24.159,
- Construction Monitoring: Having a tribal representative and/or qualified archaeologist on site during construction

There are two residences that are owned and leased out by SCM. Only one of the two residences is currently occupied. During the analysis, it was identified there could be noise impacts to these residences from the construction phase of the project. The residence in T10S R38E Section 1 is occupied currently, and SCM has committed to take

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reasonable steps to alleviate noise impacts during the construction phase. SCM does not have any immediate plans for future occupancy of the residence in T9S R39E Section 14.

These measures would minimize noise during construction at human and wildlife receptors near the project. During construction, having a tribal representative and/or qualified archeologist present during construction could minimize disturbances to these cultural features.

DEQ has determined that all aspects of the preferred alternative are reasonable, achievable under current technology, and economically feasible (Section 75-1-201(1)(b)(vi)(C)(I), MCA). DEQ has consulted extensively with SCM regarding all aspects of the preferred alternative, has given due weight and consideration to SCM's comments to date regarding the preferred alternative, and will do so going forward in connection with the formulation of the FEIS (Section 75-1-201(1)(b)(vi)(C)(II), MCA).

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