

CHECKLIST ENVIRONMENTAL ASSESSMENT

COMPANY NAME: Signal Peak Energy, LLC (SPE) **Project:** Permit Amendment No. 03, Life-of-Mine (LOM)

OPERATING PERMIT #: C1993017 **Date:** May 16, 2016

LOCATION: Bull Mountain Mine No. 1 is approximately 15 miles southeast of Roundup, MT.
T6N, R27E: Sections 3, 4, 5, 8, 9, 10, 11, 14, 15, 16, 17, 21, 22, 23, 26, 27, 28, 34

County: Musselshell/Yellowstone, MT

SURFACE PROPERTY OWNERSHIP: Federal State Private

MINERAL PROPERTY OWNERSHIP: Federal State Private

BACKGROUND

Surface Mining Permit C1993017 was originally issued to Meridian Minerals on October 15, 1993, transferred to Glacier Park Company on September 25, 1995, transferred to Mountain Inc., on November 20, 1995, and to BMP Investments, Inc. on July 2, 2002. BMP Investments Inc. (BMPII) was renamed Bull Mountain Coal Mining, Inc. on December 13, 2006 and the permit was transferred to Signal Peak Energy, LLC on September 15, 2008.

This Checklist Environmental Assessment has been prepared to supplement the Environmental Impact Statement titled, Meridian Minerals Company, Bull Mountains Mine No. 1, Musselshell and Yellowstone Counties, Montana, November 1992, which covered the area known as life of mine. The area within proposed Permit Amendment No. 03 (AM3) was included in the LOM area addressed by the Environmental Impact Statement (EIS). The EIS can be viewed at <http://deq.mt.gov/Public/ea/coal>.

TYPE AND PURPOSE OF ACTION:

Proposed AM3 would increase the mine permit area (LOM) of their underground coal mine (Bull Mountain Mine No. 1) by adding 7,161 acres and expanding the mine from five longwall panels (approved under Amendment No. 02) to 14 longwall panels (Figure 1). This area is included in 18 sections within Township 6 North, Range 27 East as shown below.

No changes to the reclamation plan are proposed since AM3 only addresses expansion of the permit area to allow continuation of underground mining. General plans for the mitigation of impacts to springs, seeps, and drainages were included in SMP C1993017 when originally approved. Site specific plans for the repair or mitigation of impacts related to subsidence or other mining impacts will be developed as they are identified.

SPE is the operator of Montana's only active underground coal mine. The proposed plan includes room and pillar mining to develop nine additional panels for longwall mining. If approved, AM3 would extend the Permit Boundary toward the northeast (see Figure 1) and increase the permit area by 7,161 acres for a total area of 14,896 acres. Total acreage of the underground mine plan (LOM) would be 10,569 acres. Approval of this amendment would further increase the potential of the ground surface (directly above the panels and within the angle of draw) to be adversely affected by subsidence caused by mining.

Approximately 20 acres of additional surface disturbance is expected as a result of this amendment. This amount of additional disturbance is necessary to construct temporary surface facilities that support underground mining. Temporary surface support facilities include boreholes, associated pads, power lines, and roads.

If approved, AM3 would add approximately 176 million tons of in-place coal reserves or 110 million tons of mineable coal. Of this, approximately 83 percent would be recoverable (91 million tons of coal).

The amended area includes the following:

PERMIT AMENDMENT NO. 3 AREA

Township 6 North, Range 27 East		
Section 3	SW¼; SW¼SE¼; W¼NW¼	285
Section 4	S¼NE¼; NE¼NE¼; SE¼NW¼; S½	474
Section 5	S¼SE¼	79
Section 8	NE¼; E¼NW¼; Portion SW¼NW¼; Portion S½;	454
Section 9	ALL	637
Section 10	S½; NW¼; W¼NE¼; SE¼NE¼	601
Section 11	S¼SW¼; NW¼SW¼; SW¼NW¼	160
Section 14	S½; NW¼; SW¼NE¼	520
Section 15	ALL	641
Section 16	N¼; SE¼; E¼SW¼; Portion W¼SW¼	622
Section 17	Portion E½	101
Section 21	Portion N¼; Portion SE¼	306
Section 22	ALL	640
Section 23	N¼; SW¼; NW¼SE¼	520
Section 26	W¼; W¼SE¼; NE¼SE¼; W¼NE¼; SE¼NE¼	559
Section 27	E½; Portion W¼	518
Section 28	Portion NE¼NE¼	12
Section 34	Portion W¼NE¼	32
TOTAL AMENDMENT NO. 3 AREA ACREAGE:		7,161

	Mineral	Surface
Changes to Permit Acreage	Change Amount + or -	Change Amount + or -
Federal:	2,529	577
Tribal:	0	0
State:	622	622
Private:	4,010	5,962
County:	0	0
Total:	7,161	7,161

Reclamation plan:

Signal Peak Energy, LLC commits to a reclamation plan designed to restore the natural use and utility of the land affected by mining activities, including reclamation of supplemental surface support facilities and repair of any significant subsidence fractures. Additionally, ample permit commitments, permit designs, permit plans, and permit bonding exists to ensure all potential hydrologic subsidence impacts have been adequately addressed in this amendment application. The reclamation plan is in section 17.24.313 of the Mining Permit (C1993017).

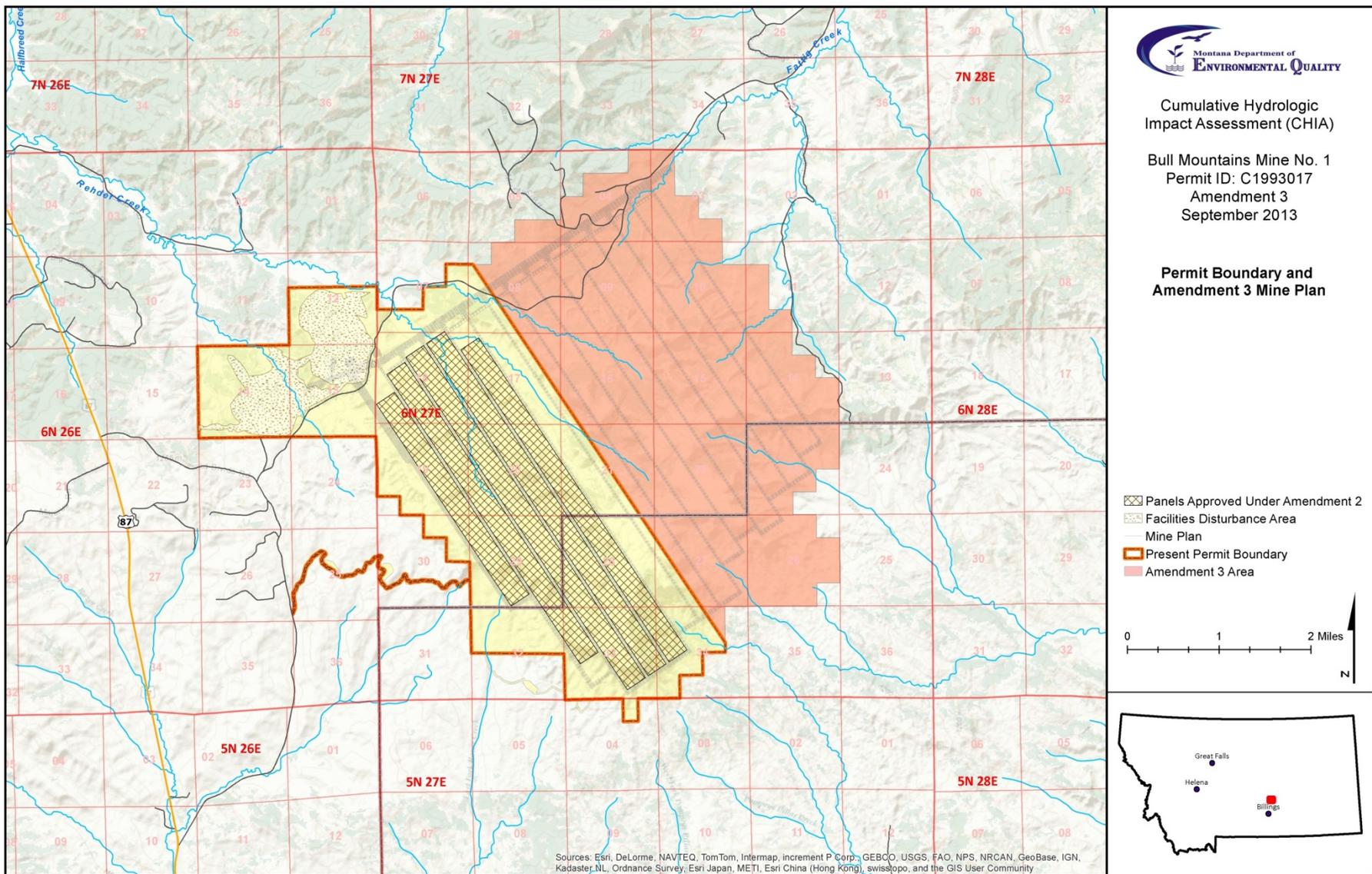


Figure 1: Bull Mountains Mine: Amendment 3 Area Map

N = Not present or No Impact will occur.

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

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] 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>[Y] The permit and proposed amendment area of Bull Mountains Mine No.1 are situated in the Bull Mountains that range in elevation from about 3,700 feet to 4,700 feet in the permit area. Topography of the area is rugged and the terrain is generally mountainous, dissected by ephemeral streams with higher areas or plateaus commonly capped by resistant sandstone and clinker.</p> <p>Tertiary age continental rocks (alternating sandstones, siltstones, shales, clinker, and coals) of the Tongue River Member of the Fort Union Formation are the principal rock units that would be disturbed by expanded longwall coal mining under AM3. Field inspection by the Department of Environmental Quality (DEQ) indicated that these geologic rock units are not unusual or unstable.</p> <p>Soil survey data, as described in section 17.24.304(1)(k) of the permit, identified nine well developed soil series in the permit area and vicinity that are dominated by silty or sandy loams. Susceptibility of these soils to wind and water erosion ranges from moderate to high. However, expansion of underground mining would leave the soil resource in place and relatively undisturbed as successive subsurface coal panels are mined. Disturbance would consist of previously approved facility areas (e.g., office buildings, roads, a rail loop, ponds, and support for the processing of the coal) including disturbance associated with construction of borehole pads and roads. Much of the area required for these activities is already disturbed and currently permitted.</p> <p>Soil and suitable material salvage associated with development of the waste disposal area (WDA) created the largest surface disturbance outside the facilities area. Soil and suitable material salvage was conducted specific to the WDA. Salvage was within the bounds of law and rules while following permit commitments for soil handling and protection of the soil resource.</p> <p>Expanded mining operations could create surface subsidence features similar to those recorded during extraction of the first and second series of mining panels associated with Amendments No. 1 and 2 (Figure 1), respectively. Shallow sink-like depressions, linear surface fractures, and minor rockslides associated with subsidence have not had a noticeable effect upon the soil profile. Repair of subsidence features may create additional damage to soils and may not be warranted. However, repair or mitigation of subsidence features would be completed when necessary to restore stream profiles, drainages and ensure that premine land use is maintained. All areas of disturbance (e.g. facilities areas) were previously permitted with a reclamation plan that follows applicable rules and regulations set forth in the Administrative Rules of Montana (ARM).</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>The main hydrologic issues surrounding the Bull Mountains Mine No. 1 are the potential for loss or diminution of the quantity and quality of groundwater and surface water, and the resulting impacts to wells, springs, ponds, and stream reaches within and in the vicinity of the mined area. These potential impacts are described below and would be expected if mining is expanded under AM3.</p>

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[Y] Surface Water: Streams & Springs

Potential impacts to surface waters are generally confined to those impacts resulting from land subsidence, facilities area and WDA disturbance, peripheral infrastructure and facilities (permit lands not including the main facilities and WDAs).

Surface streamflow in the area is ephemeral and driven by storm events and extended periods of wet weather that act to recharge perched aquifers. Perched aquifers, in turn, supply spring flow and dry up during extended periods of below normal precipitation. Spring-flow may be impacted through subsidence processes related to undermining of the overburden aquifers, potentially interrupting, and/or altering subsurface flow-paths. Springs and seeps are monitored regularly in order to assess impacts from mining. Where flows from springs and seeps are impacted, water quantity and water rights have the potential to be impacted. Impacts to water rights are assessed and evaluated with respect to regional and local impacts to spring systems that feed surface water resources. Section 9.2.4 describes anticipated and observed impacts to surface waters from subsidence.

As underground mining thus far has progressed through Panel 4 and part of Panel 5, potential impacts to surface waters have been confined to springs located over or proximal to undermined areas. As described in Section 9.2.4, impacts due to subsidence include diminution of spring flows at spring 17145, and increases in SC at spring 17275. SPE has begun to implement remedial mitigation measures at spring 17145, and continues to monitor water quality and quantity to assess whether recently identified impacts are temporary in nature, or will require more permanent solutions. Impacts identified thus far are anticipated and mitigations measures have been implemented as prescribed in the operating permit, in response to these anticipated changes.

To date, no material damage to surface waters from undermining and subsidence is evident. Impacts are limited to springs over mined areas, and no subsidence impacts to surface waters has been observed or recorded outside of the permit boundary. As the current mining activity is proposed throughout the permit area, impacts similar to those observed are expected to occur as mining continues. As impacts occur, mitigation procedures as described in Section 314-3 of the permit will be employed to remediate affected resources.

Surface water runoff in the facilities area and WDA is controlled through a series of ponds and diversion structures and regulated through DEQ's MPDES program. Discharges to surface waters are very infrequent with the first discharges in 20 years occurring during extreme wet periods in 2011, 2013, and 2014. Section 9.2.3 describes expected and observed hydrologic impacts and water management operations in the facilities and WDA.

Water management controls on peripheral infrastructure and facilities (permit lands not including the main facilities and WDAs) include structures to control runoff from mine roads, pads, and other land surface disturbances, and are managed through the implementation of Best Management Practices. Best Management Practices typically include a variety of design considerations (culvert sizing, berming,

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placement of structures, etc.) and are described in detail in SMP C1993017, Vol. 3, Section 314, 3.0, Surface Water and Groundwater Control and Treatment Plan. Evaluation of impacts relating to surface water runoff and management are therefore evaluated with respect to adherence to approved design plans and permit conditions in controlling and managing surface runoff. Section 9.2.3 describes potential impacts and hydrologic controls implemented to minimize hydrologic impacts of peripheral facilities and infrastructure.

[Y] Groundwater

Five groundwater systems are identified in the mined area and vicinity: the alluvial, the overburden, the Mammoth coal, the upper underburden, and the deeper underburden. Mining is expected to affect the water levels of in groundwater in the overburden, Mammoth coal, and upper underburden. Groundwater direction in all but the alluvial aquifer is generally toward the north-northwest; alluvium within the permit boundary is generally dry except during and after significant storm events and groundwater in alluvium flows in a downstream direction. Generally, groundwater associated with the deeper underburden, upper underburden, and Mammoth coal aquifers occurs under confined conditions and groundwater is unconfined in the overburden and alluvial systems.

Groundwater enters the mine as the Mammoth coal is removed, and by development of subsidence fractures (series of vertical conduits or drains) in the overburden. Water is removed from the mine by dewatering pumps and through evaporation by ventilation fans. As the longwall panel advances, unsupported overburden rocks flex (subside), fracture (fractured zone), and begin to collapse (caved zone) into the void formally occupied by coal. The collapsed material in the mine voids is known as gob. Development of near vertical subsidence fractures in the overburden is likely responsible for much of the water in the mine as they intercept, drain, and partially dewater shallow groundwater above the mined area.

Most private water supply wells in the area of the mine are completed in relatively deep sandstones of the deeper underburden that are likely hydraulically isolated from shallower units (e.g., upper Underburden and Mammoth coal) and effects of mining. Aquifer test data indicated that these relatively deep sandstones occur under confined conditions and are not expected to be influenced by mining. These relatively deep underburden sandstones have been identified as a source of replacement water if shallower supplies are impacted and must be replaced.

The two main potential impacts to groundwater from mining are reductions in available water quantity at wells due to drawdown and migration of lower quality water off site. These potential impacts are evaluated by monitoring water levels and quality in a network of 105 monitoring wells installed in the alluvium, overburden, Mammoth coal, upper underburden, and deeper underburden. Evaluation of potential future impacts is also assisted by the use of a groundwater model.

Alluvial groundwater quality changes have been noted in a well (BMP033) immediately downgradient of one sediment pond. It is unclear if the changes observed in BMP033 have been affected by storage of water in this sediment pond. Similar water quality changes in the alluvial

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groundwater occurred throughout the area in response to an unusually wet year in 2011. SPE has changed their water management procedures to limit the storage of water in this pond. Continued monitoring will be used to evaluate any further changes in water quality in BMP033, and further action will be taken if necessary to prevent adverse impacts to alluvial groundwater. Comparisons of alluvial groundwater levels and quality in drainages undermined by the longwall to those in undisturbed drainages indicate that undermining has had no effect on alluvial groundwater quantity or quality. Because of these observations and the similar nature of the alluvial groundwater which will be undermined in the future, no future impacts to alluvial groundwater are anticipated.

Monitoring wells completed in the overburden indicate that declines in water level in overburden groundwater only occur immediately before undermining by the longwall. Drawdown in the overburden as a result of mining does not extend very far from the mined area. No water quality changes have been observed in overburden monitoring wells which have been undermined or are near the mining area. Future water quantity impacts are expected to be similar to the observed impacts to date, and limited to the immediate mining area. Because fracturing associated with subsidence does not significantly change the availability of dissolved ions, no changes in overburden groundwater quality are expected in future undermined areas. No future impacts to overburden groundwater quantity or quality outside of the permit area are expected.

Monitoring indicates that water levels in the Mammoth coal around the mined area are decreasing to form a cone of depression as predicted in the PHC and groundwater model. The current maximum drawdown of approximately 50 feet occurs at well BMP008 in the mine area. No changes to Mammoth coal groundwater quality have been observed, even in areas where drawdown is occurring. After mining is completed, the Mammoth coal within the mine area is replaced by the fractured overburden material (gob) which collapses into the mine void. Water levels in the gob and Mammoth coal are expected to slowly recover. The groundwater model predicts water levels will reach near-stable post mine levels within 50 years after mining. Water levels are predicted to be similar to pre-mining conditions, except in the south portion of the mine area, where some residual drawdown is expected to be permanent due to the changes in permeability from coal to gob.

Because of the increased availability of dissolved ions from the fractured mine gob, water quality in the gob groundwater is expected to be poorer than baseline water quality in the Mammoth coal. Initial water quality samples were collected from the mine gob in longwall panels 3 and 5 in 2015, and had a median specific conductance of 4,590 uS/cm. Water quality sample from older mines near Roundup have shown a median specific conductance of 3,038 uS/cm. It is likely the eventual specific conductance in the Bull Mountains Mine gob will be lower than the initial samples, but not as low as the Roundup mines due to the different mining methods used. Using the quantities of water flowing into the coal north of the mine after mining (as predicted by the groundwater model), the sampled gob water quality, and the median overburden water quality in the area near the north edge of the mine, a simple mixing calculation results in a specific conductance at the north permit boundary of 2,670 uS/cm. Due to the effects of dispersion and sorption, two natural processes which tend to reduce solute concentrations, the actual specific conductance at the permit boundary after mining is likely

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	<p>to be less than this calculated value. Baseline Mammoth coal water quality in this area ranges in specific conductance from 1,500 to 3,900 uS/cm with a median of 2,180 uS/cm. The most reliable Mammoth coal well north of the mine with the longest period of record has a median specific conductance of 2,605 uS/cm. Based on all available information and the above predictions and analysis it is unlikely that mining will cause any changes in water quality outside the permit area which are harmful, detrimental, or injurious to the beneficial uses of Mammoth coal groundwater, or cause any numeric standard to be violated.</p> <p>Observations of water quantity and quality in the upper underburden indicate some hydraulic connectivity between the upper underburden and the Mammoth coal, and drawdown observed in the upper underburden is similar to that in the Mammoth coal. No water quality impacts attributable to mining have been observed in the upper underburden. Water level recovery after mining in the upper underburden is expected to occur similarly to that described for the Mammoth coal above. Because the upper underburden exhibits some hydraulic connection with the Mammoth coal, gob water migration into the upper underburden after mining is also possible. However, due to the lower conductivity of the upper underburden compared to the Mammoth coal any impacts in the upper underburden are expected to be less than those observed in the Mammoth coal and described above.</p> <p>Monitoring of the deeper underburden has shown no effects on water quantity or quality due to mining. Due to its isolation from the Mammoth coal and upper underburden by thick layers of low permeability rocks, no water quantity or quality impacts to the deeper underburden are expected as a result of mining.</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] No direct impact to air quality is expected due to expansion of mining operations. Some increase in fugitive dust is anticipated due to the proposed increase in production (e.g. run-of-mine storage, coal processing, and haulage). SPE must operate within the confines of the approved Air Quality Permit.</p>
<p>4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?</p>	<p>[N] Underground expansion of mining activities within the proposed amendment would have no direct impact on vegetative communities. Subsidence resulting from underground mining would result in local areas of surface disturbance (e.g. fractures, areas of sloughing, etc.) similar to subsidence features recorded during extraction of the first two panels. Areas of surface disturbance would be evaluated and a site-specific repair-mitigation plan developed and implemented unless it was determined that natural healing was the best alternative. Repair could include soil salvage, grading, soil replacement, and seeding with an approved seed mix. Subsidence of additional panels associated with this amendment would result in sequential subsidence that would have minimal effect on deep rooted plant species, such as ponderosa pine; some trees may be damaged, especially if they are located on a slough, subsidence fracture, or depression.</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>[Y] Numerous springs are located within the proposed amendment area. These springs are important to grazing livestock and to the local wildlife community. Water provided by these springs helps ensure livestock distribution throughout the grazing pastures and allows for overall grazing of the area, increasing the economic return to the land owner. A variety of wildlife species, including small mammals, bats, song birds,</p>

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	<p>shorebirds, upland game birds, raptors, big game, and warm-water aquatic species utilize the springs and associated areas of ponded water.</p> <p>Aquatic plants (periphyton), macroinvertebrates (e.g. earthworms, insects etc.) and vertebrates (e.g. tiger salamanders, painted turtles) are associated with springs and ponds [304(1) j-27]. Fish have not been found in any of the ponds or stream reaches. Currently, there is no evidence that mining has impacted aquatic or other wildlife (birds, deer, coyotes, etc.) that depend on these water supplies.</p> <p>No threatened or endangered aquatic species or habitat has been identified in the area.</p> <p>The amendment application was received by DEQ on October 5, 2012, and the amendment was issued on October 18, 2013, prior to the effective date of the Governor's Executive Order 12-2015 SGHCP addressing sage-grouse management in Montana (January 1, 2016). Therefore, mining in the amendment area is an existing land use and activity that is not managed under the Executive Order.</p> <p>The southern portion of the proposed amendment area has been identified as general sage-grouse habitat. Wildlife baseline surveys and annual monitoring efforts conducted in the area have not produced any sage-grouse observations. The area consists of rough topography, with a mixture of conifer, burned conifer, and grassland shrub areas. This type of habitat is not readily conducive to use by sage-grouse.</p> <p>Subsidence related fractures associated with the Fractured Zone may intercept and direct shallow groundwater into the Caved Zone which may alter spring discharge and ultimately land use.</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 threatened, endangered, or sensitive plant species have been identified within the permit or amendment areas. Similarly, no endangered animal species have been identified within the proposed amendment area. Nineteen wildlife species of special concern have been observed in the wildlife monitoring area. These include the bald eagle, northern goshawk, Swainson's hawk, ferruginous hawk, long-billed curlew, Lewis's woodpecker, red-headed woodpecker, Cassin's kingbird, loggerhead shrike, Brewer's sparrow, lark bunting, grasshopper sparrow, chestnut-collared longspur, gray-crowned rosy finch, Townsend's big-eared bat, spotted bat, Great Plains toad, northern leopard frog, and sagebrush lizard. The majority of these species are considered transients or occasional visitors to the permit and proposed amendment areas. Three species (e.g. red-headed woodpecker, Cassin's kingbird, and northern leopard frog) have been observed on a regular basis and should be considered residents. Three other species (e.g. Townsend's big-eared bat, spotted bat, and sagebrush lizard) have been observed during regular surveys within the monitoring area; however, additional surveys are needed to better define whether or not they are residents of the area. Several of these species may be impacted if subsidence impacts springs and associated wetlands within the amendment area.</p>
<p>7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any</p>	<p>[N] The originally approved permit area cultural resource obligations involved a Class III (Intensive) archeological/cultural inventory on all of</p>

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<p>historical, archaeological or paleontological resources present?</p>	<p>the proposed surface disturbance area, plus a Class I literature search and rock art and standing-structure evaluation of the area overlying underground mining through life of mine. This was completed in 1989 (Rood 90 report), with supplemental intensive inventory of all known springs in 1992. Native American consultation (under AIRFA authority) was completed in 1993. In addition, the permit included a stipulation that steep-slope areas (>25%) would be upgraded to Class III before starting longwall mining.</p> <p>AM3 is for extension of underground activities of an existing mine, and the only significant surface disturbance anticipated is the possibility of some surface failure in areas of steep slopes. Roads and pads will be located above the panels; however, Class III archaeological surveys are required to be completed two panels in front of mining and will allow for the identified sites to be avoided or mitigated with approval from the Montana State Historical Preservation Office (SHPO). No additional archeological or historical sites have been discovered, and no impacts to known archeological or historical sites should occur. Protection of any incidentally discovered sites is stipulated in the approved mining permit.</p>
<p>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?</p>	<p>[Y] Work associated with proposed permit AM3 would lower the relief of the undermined area by approximately 7 feet or 70 percent of the extraction height (PHC). This was confirmed in August 2011 when Dunn Mountain subsided 7 feet as Panel 2 advanced beneath the mountain. Generally, this amount of subsidence is minor compared to the amount of topographic relief in the area and should not be noticed especially from a distance. However, there may be noticeable changes to the topography if subsidence and associated surface disturbance is greater than expected.</p>
<p>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?</p>	<p>[N] Water used by the mine offices and for locker room showers is supplied by the Office Well that is completed in relatively deep underburden sandstones. This well is permitted by DEQ as a public water supply system (PWS No. 04676). Two wells completed in the Madison Formation (each approximately 8,600 feet in depth) provide water for industrial uses at the mine. An additional well has been drilled into the Madison Formation, but the casing failed and it is not producing water. Aquifer test results indicate that stock wells and domestic wells in the area will not be affected by production from these wells. For example, calculated drawdown (Hydrometrics, 2009) in monitoring well 62614-100-UB (BMP-121 - underburden monitoring well approximately one mile from the Office Well) was just over three feet after 20 years of continuous pumping (6 gpm). Similarly, pump test data (Hydrometrics, 2006) from Madison Well No.1 indicate that 18 feet of drawdown is predicted in a hypothetical well 1,000 feet from the pumping well after two years of pumping and 340 feet of drawdown after 20 years of pumping. This indicates that production (360 gpm) from the isolated Madison aquifer will not affect the yield of other Madison wells since the nearest Madison well to the mine site is approximately 17 miles.</p> <p>The proposed activity contemplates economic exploitation of coal resources that will not result in significant decrease in the total amount of exploitable coal reserves in Montana.</p> <p>There are no activities nearby that will affect the proposed work.</p>
<p>10. IMPACTS ON OTHER</p>	<p>[Y] Livestock production and wildlife habitat would require the operator</p>

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ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?

to minimize or repair subsidence features as necessary. The project area is remote and except for ranching and some hunting activities, there are no human activities in the area that would be affected by underground mining operations proposed under AM3.

IMPACTS ON THE HUMAN POPULATION	
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[Y] There is potential for injury to humans, livestock, and wildlife as subsidence features appear on the surface. A mining schedule must be published by the Operator for the respective landowners at least six months before their lands are undermined to minimize and warn of potential impact to humans and structures [ARM 17.24.911(5)].
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[N] Grazing or premining land use would not be significantly impacted by the expansion of underground mining activity and associated subsidence. Evidence of subsidence may include damaged fences, roads, minor rockslides, sink-like depressions, linear or en- echelon surface fractures. These features have not impacted livestock production while the first series of panels were mined and are not expected to impact production under AM3. It is expected that these surface impacts would be short-term; the operator would be required to repair the damage if extensive or impacted the postmine land use. Subsidence could impact existing wells and springs; loss of these water sources would result in development and implementation of a plan to replace them. This area is remote and with the exception of livestock grazing there are no industrial or commercial activities near the proposed amendment area.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[N] Approval of AM3 would not create, move, or eliminate jobs. Approval would add a significant amount of acreage and tonnage to the permit, which will allow mining to continue at the current rate, thus, continuing employment at approximately the current level for an additional 9 years.
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[Y] Additional mining would increase the amount of coal severance tax available to the state. Employment of the current and projected workforce would result in additional federal and state income taxes. Musselshell and Yellowstone counties would collect taxes based on the mine development within the respective county. Property taxes would be collected on the mine facilities and equipment based on its location. It is possible that lands within the amendment area may be reassessed and taxed at a lower rate if the county determines that the value of the land has been impacted by subsidence.
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] Proposed work would not add substantial traffic to existing roads and the demand for government services would not exceed that required for review and approval of AM3.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N] No locally adopted environmental plans and goals are in effect.
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?	[N] Wilderness, recreational areas, public parks, or historic sites are not nearby or accessed through the proposed permit area. Expanded mining would not adversely affect any publicly owned park or place included in the national register of historic sites. The area is controlled by private landowners. Except for limited hunting and camping, the area is not typically used for recreational activities.

IMPACTS ON THE HUMAN POPULATION	
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N] Field inspection by DEQ confirmed that few buildings or manmade structures are near or within the area proposed for expansion of the permit. Approval of AM3 would not add to the local population; additional housing would not be required.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N] Inspection by DEQ confirmed that the area is remote from most human activities and communities. Disruption of lifestyles is not expected since there is minimal human activity (i.e., ranching) within or near the proposed permit area.
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N] The project is not expected to significantly impact any inventoried Historic and Archeological Sites (see Item 7, above).
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.	[Y] Private property would be undermined and impacted by subsidence pursuant to the Strip and Underground Reclamation Act (ARM 17.24.901). (See Discussion Above)
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.	[Y] Surface uses could be limited during a period of time when mining is proceeding and risk of subsidence is present. Proposed state government activities would place some restrictions on the owner's use of the surface property, but not sufficient enough to constitute a taking because the owner is not deprived of property or all economic uses of that property.
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.	[Y] DEQ has limited of discretion in its permitting decisions.
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[N]

25. Alternatives Considered:

No Action: The proposed mine area within Application AM3 would remain undisturbed and outside the boundaries of SMP C1993017. Mining and reclamation would continue within the remainder of the Bull Mountains Mine No.1 as currently permitted and would be completed within three to four years, but the potential of the coal reserve would be much reduced.

The effect of no-action alternative on drawdown of groundwater and impacts to surface and groundwater quality would remain the same as current mining with no additional impacts.

Social and economic impact of no-action alternative would keep employment at the mine near the same levels for three to four years until current permitted coal reserves are depleted. After the coal was mined the mine would begin a shutdown process and eventually no longer employ workers. The area surrounding the facilities would remain working cattle ranches.

Approval: Coal mining operations would continue under authority of SPE's permit (SMP C1993017) and subject to its requirements which include reclamation described in the Reclamation Plan.

26. Public Involvement: Availability of this Environmental Assessment was published in *The Billings Gazette and Roundup Record Tribune*. The EA will also be available on the DEQ Internet site (<http://www.deq.mt.gov>). Copies of the application are available for public review at the Bull Mountain Mine No.1 office, the Musselshell County Courthouse in Roundup, and at the DEQ offices in Helena and Billings.
27. Other Governmental Agencies with Jurisdiction: USDI, Bureau of Land Management (mineral lease and surface), Montana Department of Environmental Quality, Water Protection Bureau (MPDES), Air Resources Management Bureau (air quality permit), Montana Department of Natural Resources and Conservation (water rights and mineral lease), and Office of Surface Mining.
28. Magnitude and Significance of Potential Impacts: There would be no significant impacts associated with this expansion that were not previously addressed in the EIS.
29. Cumulative Effects: SPE is currently conducting exploration activities adjacent to the permitted area. DEQ has determined that prospecting activities including drilling, overland travel, etc. will not create a significant impact as no substantial disturbance is permitted as defined by ARM 17.24.301(121). Future mining of the area being prospected is unknown at this time; therefore, is not considered a cumulative effect for this permitting action. No additional activities have been identified in the area.

The current WDA may reach capacity prior to completion of the longwall panels contained in AM3. If a second WDA area is needed, SPE would be required to submit plans for creation of a new WDA, including location, size, and operation. It is anticipated that this application would result in a significant increase in the reclamation bond as well as a change to the hydrologic balance; therefore, the application would be a major revision. A major revision would include an additional environmental review, as well as opportunity for public comment. SPE has not proposed a plan and location for a second WDA; therefore, DEQ is unable to fully analyze the environmental impacts at this time.

Recommendation for Further Environmental Analysis:

EIS More Detailed EA No Further Analysis

EA Checklist Prepared By: Montana DEQ in cooperation with Montana DNRC.
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