

ENVIRONMENTAL ASSESSMENT

Project Name:	Signal Peak Energy, LLC Bull Mountain Mine – Permit Amendment No. 3
Proposed Implementation Date:	Fall 2014
Proponent:	Signal Peak Energy, LLC, 100 Portal Drive, Roundup, MT 59072
Location:	<u>Township 6 North, Range 27 East</u> Section 16: All (Mineral Only)
County:	Musselshell
Trust:	Common Schools

I. TYPE AND PURPOSE OF ACTION

Signal Peak Energy (SPE) has applied to DNRC Trust Lands Management Division for operation and reclamation plan approval pursuant to paragraph 1 of their State coal lease. This lease was issued to SPE in September 2012. Approval allows coal mining operations to expand the Bull Mountain mine onto State School Trust Lands in southeastern Musselshell County. The DNRC review utilizes technical data supplied to the Montana Department of Environmental Quality (DEQ) from SPE as well as analysis data provided by DEQ; therefore, this review tiers from the environmental assessment conducted by the DEQ for Permit Amendment No. 3 of the Bull Mountain Mine. DNRC Trust Land minerals account for 640 acres of the total 7,179 acres which includes the Amendment 3 expansion area and the entire State tract. The State section is located in Section 16, Township 6 North, Range 27 East. This EA reviews the potential effects that the proposed mine expansion would have on the human and natural environment on the State section. The current method of mining involves room and pillar underground mining and will add 9 new longwall panels to the existing mine operation. If approved by the Board of Land Commissioners, the mine would add approximately 12 million tons of recoverable coal on the State section out of 91 million total tons of coal.

All proposed mining would be performed underground; therefore, there will be little to no surface disturbance to the State section, other than that caused by subsidence. The State tract is surrounded by private and landlocked Federal land so no public access exists to the tract.

This Environmental Assessment has been prepared in addition to the environmental assessment prepared by the DEQ in October, 2013 for the project known as Permit Amendment No. 3, Life-of-Mine. The DEQ environmental assessment supplements the Environmental Impact Statement (EIS) conducted for Meridian Minerals Company for the Bull Mountains Mine No. 1 in November, 1995. The DEQ environmental assessment and the EIS review both include the area known as the life of mine (LOM), which includes the State section.

The proposed action would generate revenue for the Common School Trust. Lands involved in this proposed project are held by the State of Montana in trust for the Common Schools (Enabling Act of February 22, 1889; 1972 Constitution, Article X Section 11). The Board of Land Commissioners and the DNRC are required, by law, to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Section 77-1-202, MCA). The proposed activity would operate in accordance with all applicable State and Federal rules.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

MEPA review for the proposed action on State minerals was coordinated through the DEQ Coal Section and DNRC Petroleum Engineer, Trevor Taylor.

Public scoping for technical adequacy of the project was solicited by DEQ through the Billings Gazette paper. The solicitation for technical adequacy was run for two weeks, a solicitation for comments relating to the application completeness determination was run for 4 weeks, and the comment period ended October 7, 2013. DEQ received comments from 31 people or groups during the comment period that voiced concern over issues relating primarily to effects of the proposed mine expansion on water and wildlife, the need for an environmental impact statement, incomplete evaluation of the waste disposal area, and the effects of subsidence. The DEQ included a response to the comments in Appendix III to the Amendment No. 3 EAC and posted the response document to their website.

The Bureau of Land Management (BLM) completed an Environmental Assessment (EA) in March, 2010 and later concluded that no significant impact would occur as a result of the mine. The BLM also solicited comments for a 30 day period, ending on April 27, 2010.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

The DNRC Trust Land Management Division and Minerals Management Bureau has land management authority over mineral activities on state owned school trust lands. The Montana Department of Environmental Quality has regulatory authority over coal mine permitting within the State, excluding that within Indian Reservation lands. County permits and proof of qualification to conduct business in the State of Montana are also required. The Bureau of Land Management (BLM) owns a majority of the minerals within the expansion area; therefore, SPE must also acquire the appropriate permits and approvals from the BLM.

DNRC is not aware of any other agencies with jurisdiction or other permits needed to complete this project

3. ALTERNATIVES CONSIDERED:

- A. No Action Alternative – Deny permission to conduct underground coal mining within the State section. Proposed mine expansion into State, Federal, and fee coal would be expected to cease. Output from the mine would likely end upon reaching the State section. No impacts to the environment would be expected on the State section.
- B. Action Alternative – Grant permission to conduct underground coal mining on the State section within the Permit Amendment No. 3 of the Bull Mountain Mine. The action alternative would allow the State to generate revenue for the Common School Trust. SPE would manage and mitigate the effects mining would have on the State tract in accordance to DNRC and DEQ requirements.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

Surface geology within the State section consists of the Tongue River Member of the Tertiary Fort Union Formation. The Tongue River Member can range from a yellowish to yellow/gray sandstone, interbedded with shale, siltstone, and coal beds. Ledges and rimrocks located in the central portion of the Bull Mountain Basin represent thick sandstone layers. Alluvial material, generating from upper weathered layers, accumulates in the ephemeral drainages below and are typically less than 40 feet in thickness. No unusual geologic features have been observed.

The soils within the State tract are primarily loams. Soils located directly above including soils directly adjacent to the mine area will likely experience disturbance as a result of subsidence fissures and settling.

Reclamation of the surface soils will include filling in larger fissures caused by subsidence, re-grading and leveling the ground surface, and reseeding the disturbed areas with a seed mix approved by the DNRC to mitigate promulgation of noxious weeds. Smaller fissures in the surface would likely be allowed to cure naturally to minimize surface disturbance. Due to the resilient nature of the soils overlying the State section, soils are expected to rapidly restore both functional and structural integrity after subsidence has occurred.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

A. No Action Alternative – No impacts would be expected.

B. Action Alternative

Surface Water

Both the proponent of the mine expansion, SPE, and DEQ have conducted extensive studies and modeling of surface and groundwater resources for the proposed activity in which the results are included in the Cumulative Hydrologic Impact Assessment (CHIA) as a part of DEQ's environmental review. The State section has two springs located on the tract which could be affected as a result of subsidence (Springs 14165 & 14255). There is currently no evidence that spring water quantity or quality has been permanently impacted by previous mining activities at the Bull Mountain mine. Stream reaches within Section 16 are typically dry, except for periods of high precipitation.

Groundwater

Multiple groundwater aquifers have been evaluated within the mine area, the alluvial aquifer, the overburden aquifer, the Mammoth coal aquifer, the upper underburden aquifer, and the deep underburden aquifer. The vertical downward shift of the aquifers that occurs during subsidence can have an effect on the five aquifers. The overburden aquifer, the Mammoth coal aquifer, and the underburden aquifers are expected to experience temporary reductions of water quantity and quality as a result of subsidence, but are believed to recover quickly after the subsidence has occurred. The shallowest of the aquifers, the alluvial aquifer, is a perched aquifer that is typically dry within in the permit area, except after significant precipitation events. No evidence has indicated that subsidence or dewatering of lower aquifers has an effect on the alluvial aquifer. During mining of the first three

panels, no water quantity or quality changes were noted in the alluvial aquifer, aside from a short recovery period following the subsidence. The deep underburden aquifer has been shown through aquifer testing to be a confined aquifer, therefore is not expected to be influenced by mine activities.

The CHIA conducted by DEQ concluded that some surface and groundwater users outside the permit area may experience a temporary impact to their water resources, but that SPE's mine permit commits them to replacing water supplies affected by mining. Mitigation of affected aquifers includes development of the unaffected deep underlying sandstone aquifers as a replacement of potentially affected shallow aquifers.¹ Mitigation measures are also included in the reclamation plan that cover restoration of impacted springs and streams.

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

A. No Action Alternative – No impacts would be expected.

B. Action Alternative

The proposed expansion of mining operations into the State coal is not expected to directly impact air quality beyond current emission levels.

Greenhouse Gas (GHG) Emissions

The Department of Interior, Bureau of Land Management (BLM) estimated that the Bull Mountain Mine produces, on an annual basis, approximately 2,000 tons of CO₂ from mine diesel consumption, 100 tons of CO₂ from mine gasoline consumption, and 0.24 tons of black carbon emissions. These emissions are considered to be representative throughout the life of the mine; therefore, annual GHG emissions are not expected to increase as a result of the coal mine expanding into the State section.¹ The GHG emissions from the mine represent approximately 0.005% of the annual GHG's emitted in Montana each year.²

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

A. No Action Alternative – Vegetation communities would remain undisturbed under the no action alternative.

B. Action Alternative

Vegetation on the State section will not be impacted with exception of localized areas disturbed by subsidence cracks. Areas of surface disturbance are required to be repaired according to a mitigation plan through DEQ, which would include mitigations such as soil salvage, re-grading, soil replacement, and seeding with a seed mix approved by the DNRC Southern Land Office.

A review of Natural Heritage data through the NRIS was conducted and no plant species of concern noted or potential species of concern were noted on the State tract.

¹ United States Department of Interior, Bureau of Land Management. *Environmental Assessment – DOI-BLM-MT-C010-2009-0010-EA. Bull Mountain Mine No.1*; April 2011. P. 3-20

² Montana Department of Environmental Quality and the Center for Climate Strategies. *Montana Greenhouse Gas Inventory and Reference Case Projections 1990-2020*. September 2007.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

A. No Action Alternative – No impacts would be expected.

B. Action Alternative

Two springs are located on the State section and are an important source of water to the livestock associated with the State grazing lease and the local wildlife in the area including small mammals, bats, song birds, shorebirds, upland game birds, raptors, big game, and warm-water aquatic species.

In addition to mammals, the springs provide habitat for aquatic plants such as periphon, macroinvertebrates such as earthworms and insects, and vertebrates such as tiger salamanders and painted turtles. Previous mining has not caused any identifiable impacts to terrestrial, avian and aquatic life or habitats in the vicinity of the mine and are not expected to affect habitats on the State tract.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

A. No Action Alternative – No impacts would be expected under this alternative.

B. Action Alternative - No effects are expected to unique, endangered, fragile, or limited environmental resources under this alternative.

No threatened or endangered wildlife or aquatic species were found to exist on the State section. A review of the Montana Natural Heritage Tracker for the State tract revealed that 2 golden eagles have been spotted at different times on the State section. Other species of concern that have been identified in the vicinity, but not directly on the State section, include the Hoary Bat, Townsend's Big-eared Bat, Cassin's Finch, and the Pinyon Jay.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine effects to historical, archaeological or paleontological resources.

A. No Action Alternative – No effects to historical or archaeological sites are expected to occur under the no action alternative.

B. Action Alternative

Historical and archaeological sites, if any, are not expected to undergo significant disturbance on the State section as a result of the underground mining. A Class III archaeological survey is required to be completed at least two panels ahead of mining in order to identify existing sites and allow for mitigation with approval from the Department's archaeologist and the Montana State Historical Preservation Office (SHPO). The State section is scheduled to be surveyed during the summer of 2014.

11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

A. No Action Alternative – No further impacts to aesthetics would be expected under this alternative

B. Action Alternative

The State tract includes a hill top within the Bull Mountains that is visible from public roads. Subsidence is expected to cause the elevation of the terrain overlying the undermined area to lower by 7 feet. Aside from the county road, Fattig Creek Road, which is located just north of the State tract, public highways are at least 3 miles away from the State land. Noticeable changes to the surface wouldn't expected at this distance from public vantage points.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

A. No Action Alternative – No effects to limited resources in the area would be expected under this alternative.

B. Action Alternative

The demand on environmental resources such as land, water, air, or energy will not be affected by the proposed action. The proposed action will not consume resources that are limited in the area. There are no other projects in the area that are expected to affect the proposed project.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

In conjunction to this EA, the other environmental documents that have been completed that include the State section include:

1. Environmental Impact Statement (EIS) for Meridian Minerals Company – Bull Mountain Mine No. 1 Life of Mine area that was completed by the Montana Department of State Lands in November 1992.
2. Environmental Assessment (EAC) for Signal Peak Energy Company – Permit Amendment No. 3, Life-of-Mine (LOM) for the Bull Mountain Mine that was prepared by the DEQ in October 2013..
3. Environmental Assessment (EA) by the BLM for Bull Mountain Mine No. 1 federal leases in April, 2011.

No other studies, plans, or projects are known to exist for this tract.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" if no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

A. No Action Alternative – Effects to human health and safety would remain the same as the action alternative.

B. Action Alternative

There will be some health and safety concerns associated with the mine expansion into State minerals. As subsidence occurs during the undermining of State coal, open cracks are likely to form in localized areas on the surface of the State tract. A mining schedule will be posted by the operator, Signal Peak Energy, and sent to State at least six months prior to mining the underlying coal. This warning will help minimize potential impacts to humans. Larger areas of ground disturbance are to be reclaimed and reseeded when conditions on the ground are safe to conduct the work.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

A. No Action Alternative – This alternative would complicate mining to the point that further expansion of the existing mine into State, Federal, and fee coal would not be feasible. The mine would be expected cease all mining activities and enter the reclamation phase. Many existing employees would likely experience layoffs. Royalties in the amount of \$14 million would not be distributed to the State for mining of the Federal coal, \$11.7 million in royalties would not be generated for the State Common School Trust, and royalties would not be earned by fee coal owners within the expansion. Additionally, The No Action Alternative could result in the loss of potentially \$98 million dollars in taxes to the State (\$60 million in severance taxes and \$28 million in gross proceeds taxes).

B. Action Alternative

Mining underlying coal from the State section has a potential to disrupt the two existing springs on the State tract which could have negative impacts to the grazing that occurs on the tract. Permanent impacts to the existing springs above the mine are expected to be rare. In the case that a spring or both springs permanently lose the ability to flow, Signal Peak Energy has a plan in place to mitigate lost water by replacing it with other water sources.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

A. No Action Alternative – Under this alternative, the mine would eventually close, eliminating approximately 250 jobs directly related to the mine and additional jobs dependent on mine operations. Payroll dollars from the mine would no longer circulate through the local economies.

B. Action Alternative

The approval to mine coal from the State section would not create, move, or eliminate jobs. The mine is expected to have approximately the same production output as production in recent years, thus the workforce would be unaffected. The approval would allow the existing workforce to maintain their current jobs for an additional 9 years.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

A. No Action Alternative – The overall tax revenue created from the entire mine would be reduced by \$98 million under this alternative due no additional coal being mined.

B. Action Alternative

Approval of the mine expansion into State minerals would increase the amount of coal severance taxes to the State, generate federal and state income taxes from the workforce, provide taxes to Musselshell and Yellowstone counties, and provide property taxes from the mine facilities and equipment.

18. DEMAND FOR GOVERNMENT SERVICES:

Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services

A. No Action Alternative – There would be no change in the demand for government services under this alternative.

B. Action Alternative

There will be no added significant impacts to traffic, fire protection, police, schools, or government services as a result of approval to mine the State coal.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

A. No Action Alternative – There are no known locally adopted environmental plans and goals, therefore, this alternative would have no impact.

B. Action Alternative

There are not currently any locally adopted environmental plans or goals.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

A. No Action Alternative – Access to and quality of recreational and wilderness activities would remain unchanged as a result of this alternative.

B. Action Alternative

There are no wilderness areas within the vicinity of the State tract, nor is there legal access to the State section for recreational use. Therefore, approval of the action alternative would have no effect on recreational use of the State section.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing

A. No Action Alternative – This alternative would have no effect on the density and distribution of population and housing.

B. Action Alternative

Population changes and housing in the vicinity are not expected to change as a result of the mine expansion into the State section. There are currently no existing residences on the State section.

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

A. No Action Alternative – There would be no effects to social structures and mores as a result of this alternative.

B. Action Alternative

There are no native, unique, or traditional lifestyles or communities in the vicinity that would be impacted by the proposal.

23. CULTURAL UNIQUENESS AND DIVERSITY:

How would the action affect any unique quality of the area?

A. No Action Alternative – The no action alternative would have no impact on cultural uniqueness and diversity in the vicinity of the mine.

B. Action Alternative

The proposed action will not impact the cultural uniqueness or diversity of the area.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

A. No Action Alternative – The no action alternative would result in the loss of revenue to the Montana public school system from future royalty payments to the Trust, the loss in split royalty payments to the State from the Federal government royalties, the loss in coal severance and gross proceed taxes to the State, and the loss of 325 mining jobs and any secondary business jobs dependent on the mine.

B. Action Alternative

The proposed action would generate approximately \$11.7 million dollars for the Montana public school system over 5 years. This is in addition to the \$3.6 million previously collected as a bonus bid for the right to mine coal in the State section and coal severance taxes. The mine would also continue to provide jobs to the people in the vicinity.

EA Prepared By:	Name: Trevor Taylor	Date: March 18, 2014
	Title: Petroleum Engineer, Minerals Management Bureau, DNRC	

V. FINDING

25. ALTERNATIVE SELECTED:

Alternative B which would authorize approval of the Bull Mountain Mine operating and reclamation plans and expansion of the existing underground mine into the State section.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

Significant impacts are not expected to occur as a result of the proposed activity on state lands. The intent of the proposed activity is to mine State coal within the expanded mine area under DEQ Amendment 3 to the Bull Mountain Mine No. 1 mine plan. The underground mine will continue using room-and-pillar along with longwall mining techniques. The state minerals represent less than 9% of the overall mine expansion area. Mitigation measures which are common and effective have been incorporated in the proposal to minimize the potential for environment impact. Any impacts associated with this proposal on state lands are expected to be minor and short term.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

The environmental analysis for this project is appropriate and additional analysis is not needed.

EA Approved By:	Name: Monte Mason
	Title: Chief, Minerals Management Bureau
Signature: /s/ Monte G. Mason	Date: 3/18/2014