

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY COAL AND URANIUM PROGRAM  
DRAFT CHECKLIST ENVIRONMENTAL ASSESSMENT  
FOR COAL PROSPECTING PERMIT**

**DATE:** March 7, 2014

**SITE:** Spring Creek Coal Mine

**PERMITTEE:** Spring Creek Coal Company

**CITY/TOWN:** Decker, Montana

**PERMIT ID:** SMPC1979012

**COUNTY:** Big Horn

**PROJECT:** 2014 Renewal, RN7

**LOCATION:** Spring Creek Coal Mine

**MINERAL PROPERTY OWNERSHIP:**

Federal  State  Private  County  Tribal

**SURFACE PROPERTY OWNERSHIP:**

Federal  State  Private  County  Tribal

**BACKGROUND:** In 1979, Spring Creek Coal Company was issued a strip mine permit (SMP 79102, followed by amendments and consolidation into SMP C1979102) to construct, operate, and reclaim Spring Creek Coal Mine in Big Horn County about 8 miles north of the Montana and Wyoming border. The total permitted area is 9,115 acres, more or less. Spring Creek Coal Company commits to a reclamation plan designed to restore the natural function and utility of the land affected by mining activities. The reclamation plan is located in Section 17.24.313 of the Mining Permit.

**TYPE AND PURPOSE OF ACTION:** On July 25, 2013, Spring Creek Coal Company submitted an application for renewal for Spring Creek Mine. No additional mining, disturbance, or change to mining and reclamation plans are proposed; therefore, environmental impacts would remain constant and are summarized below.

N= No Present or No Impact will occur.

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

<b>IMPACTS ON THE PHYSICAL ENVIRONMENT</b>	
<b>RESOURCE</b>	<b>POTENTIAL IMPACTS AND MITIGATION MEASURES</b>
<p><b>1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:</b> 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] Most soils within the proposed mine area were previously impacted by livestock grazing. Soils are tested for suitability parameters of texture, pH, electrical conductivity (EC), sodium adsorption ratio (SAR), saturation percentage, and Boron when EC exceeds 4.0. The test results are submitted to the Department of Environmental Quality (DEQ) for verification of suitability and salvage depth concurrence.</p> <p>The soil resource is salvaged using a two-lift salvage method. The first lift of soil material ("A" lift), containing A and B soil horizons, typically consists of the top six inches of the soil resource. The second lift of soil material ("B" lift), containing B and C soil horizons, may include material down to 100 inches, sometimes greater. The "A" and "B" lift soils are distributed on regraded spoils tested for suitability parameters (below) where the postmining topography (PMT) has been met. If there are no regraded spoils</p>

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	<p>available, surplus “A” and “B” lift soil are stockpiled separately in designated stockpile footprint zones. Each stockpile is marked with a sign identifying the soil type; additionally, soil stockpiles are protected from wind and water erosion.</p> <p>Spring Creek Coal (SCC) regrades spoils to the approved PMT following mining. The regraded spoils are tested for suitability parameters of pH, EC, SAR, saturation percentage, texture, and molybdenum prior to soil laydown. Test results are submitted to DEQ for verification. Once the PMT is achieved and the spoils are determined suitable, the “B” lift soil followed by the “A” lift soil is redistributed. The depth of redistributed soil is designated by the target vegetation type as described in section <u>17.24.313 Reclamation Plan</u>. Following redistribution, an approved seed mix is applied during the next suitable planting period. Any areas where the soil appears unproductive are evaluated and an appropriate treatment is implemented.</p>
<p><b>2. WATER QUALITY, QUANTITY AND DISTRIBUTION:</b> Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[Y] <u>Surface Water</u>: Impacts to surface water resources from the SCC mine would result from changes to topography, drainage geomorphology, soils, and vegetation. Operational and post-reclamation impacts to surface water resources would include changes to surface runoff characteristics, sediment loads, and water chemistry. Specific changes to runoff characteristics include changes in the timing and volume of sediment and runoff from disturbed areas. Upstream impacts are also possible from head cutting into drainages upstream of the permit boundary.</p> <p>Existing and proposed mining would primarily disturb ephemeral mainstem and tributary drainages of Spring Creek (including the lower portion of North Fork Spring Creek), South Fork Spring Creek, and Pearson Creek. A relatively small portion of LOM disturbance would include road and rail disturbance NE and SE of the mine in adjacent Tongue River interbasin areas and Monument Creek. Disturbance also includes limited disturbance/reclamation associated with a coal bed methane water-supply line and access road in upper Pond Creek and Squirrel Creek drainages, south of the mine.</p> <p>LOM disturbance to the mainstem Spring Creek drainage (~5 square miles; above South Fork, including North Fork disturbance) would affect approximately 21 % of the Spring Creek drainage. LOM Disturbance to the South Fork Spring Creek drainage (~4 square miles) would affect approximately 29 % of the South Fork Spring Creek drainage basin. Combined LOM disturbance of the mainstem Spring Creek, South Fork Spring Creek, and lower Spring Creek (below South Fork) from both Spring Creek Coal Mine and Decker Coal Mine would total ~9.6 square miles, or ~25 % of the total Spring Creek drainage basin.</p>

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	<p>LOM disturbance to the Pearson Creek drainage (~0.7 square miles) would affect approximately 8% of the Pearson Creek drainage basin area. Approximately 0.28 square miles of additional LOM disturbance would occur in adjacent Tongue River interbasin areas.</p> <p>Reclamation would generally approximate premine topography and drainage basin morphology, but postmining topography would have changes in drainage basin size, channel location, and upland topography. The mine plan includes mining in the South Fork and Pearson Creek valley bottoms and in steeper, more diverse upland and ridge topography. Some steeper areas would be reclaimed to less steep terrain, with fewer headwater tributaries and reduced topographic diversity. The operator has committed to ongoing reevaluation of postmine topography (e.g. spoil placement, rough and final grading) to better approximate premine topography and related hydrologic characteristics and functions.</p> <p>Surface runoff (and water chemistry) would be similar to premine conditions where postmine topography (vegetation and soil) most closely approximate premine characteristics (e.g. basin size, tributary patterns, and slope diversity). Surface runoff could be reduced in areas where drainage density and topographic diversity are reduced (subject to more potential overland flow and infiltration), with potentially fewer runoff events from smaller storms.</p> <p>Sediment in runoff from initial reclamation would generally be increased over natural background levels, but should recover to levels similar to premine with vegetative recovery. Water chemistry in the predominantly ephemeral drainages of the mine area should be similar overall to premine characteristics. Any spoil aquifer discharges that develop (e.g. springs or intermittent/perennial channel reaches) are expected to have increased dissolved ions as discussed for groundwater systems in the following section.</p> <p>[Y] <u>Groundwater</u>: The transient groundwater flow model presented in the SCC permit predicts significant drawdown (e.g. over 100 feet of drawdown between the Carbone and Spring Creek faults), mainly over the SCM permit area. It is anticipated that full replacement aquifer recovery may take 100s of years.</p> <p>Drawdown associated with mining has the potential to affect a small number of domestic and stock wells within the anticipated drawdown area but is not expected to interrupt supply. If needed, replacement water sources, similar to the Anderson-Dietz coal aquifer in supply and quality, can be found in the Canyon coal or deeper coal seam aquifers. If uses are interrupted by changes</p>

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	<p>in water quality or diminishment of supply attributable to mining, the mine is required to replace the water resource.</p> <p>Water quality declines are attributable in large part due to increased sulfate, sodium, and calcium ions dissolved from minerals in broken overburden rock backfilled into the pits as spoil. Once groundwater levels have recovered in the pit area, adequate flushing of the spoils over a period of decades is expected to return spoil water quality to near premine quality. Arsenic concentrations above human health standards have been recorded in some monitoring wells on the SCC property. Arsenic has also been found in upgradient clinker wells that have not been affected by mining suggesting that natural sources of arsenic occur in the area. Spoil water and arsenic at the Spring Creek Mine currently does not pose a danger to groundwater users. There are no down gradient users that would be affected by the change in water quality.</p>
<p><b>3. AIR QUALITY:</b> Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>[Y] Pollutants, mainly particulates and combustion gases from mobile sources, would be produced by the mining activities within the mine plan at the same level as current mining operations. The expected levels of these pollutants would be addressed within the existing Montana Air Quality Permit (MAQP) #1120-11, issued October 2, 2012. All air quality regulations applicable to the mine area are contained within the MAQP.</p>
<p><b>4. VEGETATION COVER, QUANTITY AND QUALITY:</b> Will vegetative communities be significantly impacted? Are any rare plants or cover types present?</p>	<p>[Y] A baseline vegetation inventory of the study area was conducted by Bighorn Environmental, as reported in “Appendix B3: Vegetation and Range Analysis,” October, 2007. The study area includes the amendment area and potential future mining area. One plant species of concern was found in the study area. <i>Astragalus barrii</i> is ranked as potentially at risk for Montana and its global distribution (G3, S3). This species is common in the study area and the surrounding Spring Creek permit area, but the population could be affected by mining disturbance. This plant has been noted to establish in reclamation when the proper conditions are created. One other species of concern, <i>Physaria didymocarpa var. lanata</i> (G5T2, S1), has been identified in the mining plan area, and could be impacted by mining. SCC’s reclamation plans are designed to incorporate soil substrates, landscape, and topographic diversity as mitigation measures. For example, <i>A. barrii</i> prefers shallow, sparsely vegetated soils. SCC would attempt to recreate this vegetative community by using spoil and scoria as soil substitution materials when available and appropriate. Vegetation communities would be removed by mining, and vegetation resources would be impacted in the short term. Long term, however, reclamation measures incorporated into the permits are designed to mitigate the community loss, and provide for the approved post-mine land uses of grazing, pastureland, and wildlife habitat.</p>
<p><b>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND</b></p>	<p>[Y] Wildlife surveys were for baseline (1970’s) and regularly since 1994. Mining would affect existing terrestrial and avian species and their habitats;</p>

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<p><b>HABITATS:</b> Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>however, these resources are expected to reestablish following reclamation. Spring Creek annual wildlife reports and other reported data from 1994-2013 have documented twenty-seven species of special concern. These species were observed within a much larger wildlife study area, not necessarily within the mine area. Impacts are expected to be marginal as the majority of these species are transient individuals or do not reside within this application area. Species of special concern that have been documented in the area include: Black-tailed Prairie Dog, Fringed Myotis, Hoary Bat, Pallid Bat, Townsend's Big-eared Bat, American White Pelican, Great Blue Heron, Bald Eagle, Golden Eagle, Ferruginous Hawk, Peregrine Falcon, Northern Goshawk, Greater Sage Grouse, Long-billed Curlew, Franklin's Gull, Burrowing Owl, Lewis's Woodpecker, Red-headed Woodpecker, Pinyon Jay, Blue-gray Gnatcatcher, Sage Thrasher, Loggerhead Shrike, Brewer's Sparrow, Plains Spadefoot Toad, Great Plains Toad, Short-horned Lizard, and Northern Sagebrush Lizard.</p> <p>Reclamation plans are designed to incorporate soil substrates, landscape and topographic diversity as mitigation measures. Vegetative resources (terrestrial and avian) would be affected for the short term; however, reclamation measures are incorporated in the permits for long term mitigation.</p>
<p><b>6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:</b> Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?</p>	<p>[Y] Currently the black-footed ferret (<i>Mustela nigripes</i>) is Federally listed as an endangered species. The majority of eastern Montana is considered suitable black foot ferret habitat. It has been estimated that 100 to 150 acres of active prairie dog colonies are needed to support one ferret. The current mine area approaches to within approximately ½ mile of an active black-tailed prairie dog colony that is approximately 20 acres in size. This prairie dog colony may be mined in the proposed future mining area. No black-footed ferrets have been documented within the immediate area of Spring Creek Mine. No unique, fragile, or limited environmental resource other than those discussed in response above, are known to occur. No jurisdictional wetlands occur within the mine area (as determined by the Army Corps of Engineers in March 2010); however, approximately 3 acres of non-jurisdictional wetlands do occur. Spring Creek has proposed to mitigate the disturbance of the non-jurisdictional wetlands by providing a reclamation plan that replaces the wetlands on a one-to-one basis.</p>
<p><b>7. HISTORICAL AND ARCHAEOLOGICAL SITES:</b> Are any historical, archaeological or paleontological resources present?</p>	<p>[Y] Spring Creek Coal's life-of-mine Memorandum of Agreement for cultural resources contains provisions for incidental cultural discoveries. Spring Creek is fully compliant with the requirements of Section 106 of the National Historic Preservation Act for the proposed actions.</p>
<p><b>8. AESTHETICS:</b> Is the project on a prominent topographic feature? Will</p>	<p>[N] The Spring Creek Mine is located on a private road removed from any populated areas. The facilities area, primarily the coal barn and rail loop, and</p>

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it be visible from populated or scenic areas? Will there be excessive noise or light?	some of the mining activity, is visible from state highway 314, as well as the Tongue River Reservoir which is used for a variety of recreation. The normal noise associated with mining activity can be heard within the area surrounding the mine. Large cast blasts are conducted periodically and create a large sound wave and ground vibration. Renewal of the permit would result in continuation of these disturbances.
<b>9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:</b> Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N] Domestic water supply at the mine is supplied via a 576 foot deep well located in the mine facilities area. The well produces less than 10 gallons per minute. No other groundwater uses in the area will be impacted by this well. Operational water at the mine is supplied by surface runoff collected in pits and sediment ponds, and water piped to the mine utilizing Tongue River Reservoir Water Rights.
<b>10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:</b> Are there other activities nearby that will affect the project?	[Y] Livestock production and coal bed methane (CBM) development are other activities in the vicinity with potential to affect the project. Livestock operations are present throughout the area; however, they do not occur on the mine area. Drawdown from CBM development of the lower Dietz coal seams in the Squirrel Creek drainage has mainly occurred south of the permit area. However, some monitoring wells in the Canyon (D3) coal likely experienced some drawdown due to CBM development. Almost all CBM wells in the Squirrel Creek area have been shut in or abandoned. As of 2013, only 10 wells remain producing after a peak of well over 700 wells in the mid to late 2000s. Water level recovery has already been seen in many monitoring wells south of the Spring Creek permit.

**IMPACTS ON THE HUMAN POPULATION**

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<b>11. HUMAN HEALTH AND SAFETY:</b> Will this project add to health and safety risks in the area?	[N] Heavy equipment, trucks, loaders, and blasting would create hazards; however, the operator must comply with all MSHA regulations. The operator currently utilizes proper precautions to enhance safety and would continue in the best interest of its employees. Additionally, public access would be controlled by the operator and limited to the facilities area unless accompanied by mine personnel. The operation should not significantly affect human health or safety.
<b>12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:</b> Will the	[Y] Historically, the area within the mine area mine area was pastureland, grazing land, and wildlife habitat. The final reclamation plan is designed to return the area to its previous use, with equal to or greater vegetation production than premining. There would, however, be a short-term loss of

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project add to or alter these activities?	vegetative production during mining and reclamation of the area.
<b>13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:</b> Will the project create, move or eliminate jobs? If so, estimated number.	[N] The renewal of the permit will keep job levels the same as the previous five years.
<b>14. LOCAL AND STATE TAX BASE AND TAX REVENUES:</b> Will the project create or eliminate tax revenue?	[N] The renewal of the permit will keep local and state tax base and tax revenues similar to the previous five years.
<b>15. DEMAND FOR GOVERNMENT SERVICES:</b> Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] Traffic would not increase and demands on local and state services are projected to remain the same.
<b>16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:</b> Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N] There are multi-resource BLM management plans for the area. Lease agreements between Spring Creek Coal and the BLM or the State of Montana for mining of the coal in the permit area remain current.
<b>17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:</b> Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N] The mine area is not located in or adjacent to any wilderness or recreational areas. Recreation potential within the area is primarily limited to hunting by permission and occasional wildlife viewing.
<b>18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:</b> Will the project add to the population and require additional housing?	[N] The renewal would not significantly affect any populated area. Neither population increase nor residential decrease would be incurred by approving the renewal of the permit.
<b>19. SOCIAL STRUCTURES AND MORES:</b> Is some disruption of native or traditional lifestyles or communities possible?	[N] There are no known native or traditional lifestyle issues in the area. While there are known to be species of plants with traditional Native American utilization, none of them are unique occurrences.

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<p><b>20. CULTURAL UNIQUENESS AND DIVERSITY:</b> Will the action cause a shift in some unique quality of the area?</p>	<p>[N] No shift in a unique cultural quality would result from continued mining.</p>
<p><b>21. PRIVATE PROPERTY IMPACTS:</b> Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.</p>	<p>[Y]. DEQ regulates the use of private property, but the regulatory activity does not include occupation of withdrawal from use of any area or parcel, and does not prohibit the owner from undertaking intended action, so the regulation does not deprive the owner of a use.</p>
<p><b>22. PRIVATE PROPERTY IMPACTS:</b> Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.</p>	<p>[N]</p>
<p><b>23. PRIVATE PROPERTY IMPACTS:</b> Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.</p>	<p>[N/A] DEQ has a level of discretion in its permitting decision.</p>
<p><b>24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:</b></p>	<p>[N]</p>

**25. Alternatives Considered:**

- a) No Action: Under the "No Action" alternative, DEQ would deny the renewal of the permit.

A reclamation schedule to ensure proper closure of the mine would need to be agreed upon.

- b) Approval: Spring Creek would continue with the current mine plan.
- c) Approval with Modification: No modifications to the renewal application are proposed.

- 26. Public Involvement: Availability of this Environmental Assessment was published in:** Public Notice of the Renewal application was published in the Billings Gazette of Billings, Montana by Spring Creek Coal Company on November 21 and 27, and December 5 and 12, 2013 the four consecutive weeks required under ARM 17.24.401(3). A 30-day public comment period followed the final date of publication and ended on January 11, 2014 which extended to Monday January 13, 2014. One comment letter was received by the DEQ. Notice of availability of this Environmental Assessment will be published in the Big Horn County News and Sheridan Press beginning March 6, 2014, for two consecutive weeks. The public may comment on this EA through March 24, 2014 (this comment period coincides with that of the Notice of Acceptability).
- 27. Other Governmental Agencies with Jurisdiction:** US Department of the Interior including the Bureau of Land Management, and the Office of Surface Mining; Montana Department of Environmental Quality including the Water Protection Bureau (MPDES), and the Air Resources Management Bureau (air quality permit); and the Montana Department of Natural Resources and Conservation (water rights and mineral lease).
- 28. Magnitude and Significance of Potential Impacts:** Based on information available including records and periodic inspections and reports and the updated probable hydrologic conditions determination, the reviewing agency is not aware of any uncorrectable violations the applicable environmental laws of the State of Montana or any changes to mining operations that would proximately cause significant impacts for the renewal period that where not previously addressed in the EIS or subsequent EA's prepared for this operation.
- 29. Cumulative Effects:** No other new activities have been identified in the area.

**Recommendation for Further Environmental Analysis:**

- EIS
- More Detailed EA
- No Further Analysis

**EA Checklist Prepared By:**

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