

**CHECKLIST ENVIRONMENTAL ASSESSMENT**

**COMPANY NAME: Spring Creek Coal Company (Rio Tinto Group)**

**Project: South Fork Extension Amendment Application #00174**

**OPERATING PERMIT #: SMP #79102**

**LOCATION: T8S R39E Section 26 and T8S R40E Section 31**

**City/town: Decker, Montana**

**County: Big Horn**

**PROPERTY OWNERSHIP:  Federal (mineral)  State  Private (surface)**

**TYPE AND PURPOSE OF ACTION:**

Spring Creek Coal Company (Spring Creek Coal) proposes to add 157.6 acres to accommodate additional mining in the current permit area. This acreage would provide borrow material allowing extension of 14 cuts and 7 additional cuts, a 133.60 acre increase of mining disturbance. This action would increase coal extraction by approximately 30,554,000 tons. The additional borrow material is required to meet post-mine topography in the extended cuts (20 through 26) in mine Pits 2 and 3, additional cuts 27-31 to the south of current mining in Pits 2 and 3, and two additional cuts south of Pit 1. This action would extend the life of coal mining for Federal coal lease MTM 069782.

Mining activity would further extend into the South Fork Spring Creek (SFSC) drainage area. An alluvial valley floor (AVF) study by the Montana Department of State Lands (MDSL) (MDSL, 1981) for the SFSC concluded that an insignificant AVF existed. A reassessment of the 1981 decision was conducted and resulted in a report reaffirming the status of an insignificant AVF in that area (MDSL, 1989).

Spring Creek Coal commits to a reclamation plan designed to restore the natural function and utility of the land affected by mining activities, including reclamation of the SFSC. The reclamation plan is located in section 17.24.313 of the permit (Surface Mine Permit 79012).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	
<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] Soils within the proposed mine cuts were previously disturbed by cultivation and/or livestock grazing. Soils would be 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 would be submitted to the Department for verification of suitability and salvage depths.</p> <p>The soil resource would be salvaged in two lifts. The first lift of soil material ("A" lift), containing A and some B soils, would typically consist of the top six inches of the soil resource. The second lift of soil material ("B" lift), containing B and C soils, may include material down to approximately 100 inches. The "A" and "B" lift soils would be distributed on regraded spoils where the post-mining topography</p>

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	<p>(PMT) has been met. If there are no regraded spoils available, surplus "A" and "B" lift soil would be stockpiled separately in designated stockpile areas. Each stockpile would be marked with a sign identifying the soil type; additionally, soil stockpiles would be protected from wind and water erosion.</p> <p>Spring Creek Coal would regrade spoils to the approved PMT following mining. The regraded spoils would be tested for suitability parameters of pH, EC, SAR, saturation percentage, texture, and Molybdenum prior to soil laydown. Test results would be submitted to the Department for verification. Once the PMT is achieved and the spoils are determined suitable, the "B" lift soil followed by the "A" lift soil would be redistributed. The depth of redistributed soil is designated by the target vegetation type as described in section <u>17.24.313 Reclamation Plan</u> of Spring Creek Coal's Surface Mining Permit (SMP #79012). Following redistribution, an appropriate seed mix would be applied during the next suitable planting period. Any areas where the soil appears unproductive would be evaluated and treatment would be implemented.</p>
<p>2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[Y] <u>Surface Water</u> – The proposed amendment area is located in the South Fork of Spring Creek (SFSC) watershed, directly south of the currently permitted area to be mined. The SFSC joins with Spring Creek east of the permit area within the adjacent West Decker Mine permit area. Spring Creek eventually flows into the Tongue River. The proposed amendment area contains side tributaries to SFSC, which has a drainage area of 13.6 square miles upstream of mining. Spring Creek has a total drainage area of about 41.5 square miles, of which about 15.5 square miles are upstream of mining. The North Fork of Spring Creek (NFSC) has a total drainage area of about 6.5 square miles. All of the drainages are ephemeral.</p> <p>SFSC and Spring Creek flows are contained by temporary dams upstream of mining at Spring Creek Mine and by temporary dams downstream in the West Decker Mine. These and other drainages that flow into the Tongue River have been intercepted by impoundments at the Decker and Spring Creek mines. Altogether, about 154.3 ac-ft/year of runoff is contained at the mines. The average flow of the Tongue River near the Decker mines is about 334,200 ac-ft/year (USGS, 1994). Containment of 154.3 ac-ft/year of flow reduces the flow of the Tongue River by about 0.05%.</p> <p>The active pit would perform the function of final sediment control in the SFSC drainage until backfilled. Once the pit is backfilled, a sediment pond or other appropriate sediment control would be constructed in the area to control runoff and meet MPDES discharge requirements.</p> <p>Reclamation of the major drainage basins (SFSC, Spring Creek and NFSC) would be based on pre-mining drainage pattern, density and configuration. Tributary drainage basins would be reclaimed to</p>

## IMPACTS ON THE PHYSICAL ENVIRONMENT

conform to somewhat more generalized pre-mining characteristics. All major and tributary drainage basins would be reclaimed in compliance with Approximate Original Contour (AOC) guidelines (MDEQ, 1999).

As noted in the introduction, MDSL (MDSL, 1981; MDSL, 1989), concluded that SFSC was an AVF insignificant to agriculture. Historically, land use in the area has been livestock grazing, with some pastureland and cropland attempted at various times. Past attempts at flood irrigation along Spring Creek in and near the Carbone Amendment Area (CAA) were limited to 6.6 acres in 1925. A total of about 18 acres [averaging 71 feet wide by 11,000 feet long (SCCC, 1998)] immediately adjacent to Spring Creek could be flood irrigated within the permit area, while the NFSC would contain all flow resulting from the 2-yr, 24-hr precipitation event. Once Spring Creek is reclaimed it would have a floodplain about 200 feet wide and the NFSC would have a floodplain about 100 feet wide. Land use would not change, as both streams are ephemeral and, other than water for livestock and wildlife, there is no current use of runoff in the immediate vicinity.

Within the proposed amendment, drainage area for Spring Creek and NFSC remains relatively similar to pre-mining. However, the SFSC watershed is increased within the permit area, due to the addition of approximately 160 acres to the permit area

The post-mining drainages would be similar to the pre-mining drainages in terms of drainage area, channel length and drainage density. The expected annual runoff amount would be similar to that of pre-mining in Spring Creek, the NFSC, and the SFSC.

Pit dewatering and surface runoff from areas disturbed by mining would be directed to sediment ponds and traps. Most of the collected water would be consumed in haulroad dust control. During mining, and until full bond is released, discharges from sediment ponds would be required to meet Montana Pollution Discharge Elimination System (MPDES) effluent limitations.

A review of the surface water data collected at the Spring Creek Mine indicates that the minimum and maximum pH values from native runoff exceeds MPDES standards, although on average the pH falls within the range provided. Total hardness, alkalinity and SAR values reflect the bicarbonate/calcium nature of runoff water. Values for specific conductance and TDS indicate that, if available, runoff in the area could be used for irrigation or livestock use. The TSS values indicate a potential problem meeting MPDES standards. Runoff from native channels has values much higher than currently approved MPDES limitations; although, the surface runoff data from the SFSC dam, as well as, various sediment ponds indicate that these values can be reached if enough settlement time is provided.

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Surface water quality impacts from on-going mining have been minimal, to date. Discharges from sediment ponds at the Spring Creek Mine have been extremely rare. After disturbed areas have been reclaimed, water quality can be expected to return to native background levels. Once that occurs, sediment ponds would be removed, except for those approved as permanent structures.

Livestock and wildlife currently use surface water at the Spring Creek Mine; however, most impounded water is consumed in dust control efforts. One permanent impoundment would be retained in the CAA, and an existing stock pond would be replaced near its original location. Downstream water quality and quantity impacts should be insignificant. Previous land uses should return once mining and reclamation are completed.

[Y] Groundwater water can be found in coal seams, alluvium, clinker, and sandstone of the Fort Union Formation. Alluvium and clinker generally contain insignificant amounts of water and are typically dry. Rapid facies changes in the sandstones and siltstones (overburden and underburden) result in lensoidal, discontinuous units that generally do not provide a reliable water resource. Coal seams are the main aquifers in the shallow stratigraphy affected by mining. Because permeability of the coal depends upon secondary fracturing of the seam, these aquifers typically have low hydraulic conductivity and low yields (10-12 gpm). The shallowest coal seam aquifer, the Anderson-Dietz, is generally unconfined in the permit area. This coal seam aquifer is the target of mining at the Spring Creek Mine.

If the proposed amendment is approved, additional mine cuts (approximately 133 acres) would remove an additional 30.55 million tons of the 80-foot thick Anderson-Dietz coal seam. This would increase the extent of drawdown some 200 feet to 400 feet laterally beyond current predictions for the 5-foot drawdown contour interval (Nicklin, 2005). There are no private wells (other than those owned by Spring Creek Coal) within the drawdown area. The Canyon seam, some 100 feet below the Anderson-Dietz seam, has not been physically disturbed by mining and has shown little to no change in water levels in response to mining. The proposed amendment is not expected to cause significant impacts to this aquifer.

In previously mined areas, a spoil aquifer is slowly forming and water levels are expected to rise to near the pre-mine Anderson-Dietz seam water levels. Water in the spoil aquifer is of poorer quality than the Anderson-Dietz seam, with increases in major ions such as sulfate, sodium, calcium, and magnesium. Increase in arsenic has also been noted in three monitoring wells down gradient of mining. Close monitoring of water quality would continue and remediation measures would be implemented should water quality standards be exceeded. Degraded groundwater has not migrated off the permit area. The West Decker Mine (Pit 16) lies down gradient of the south part of the Spring Creek Mine. No domestic or livestock wells are

IMPACTS ON THE PHYSICAL ENVIRONMENT	
	expected to be impacted as a result of ground water quality or water level changes.
3. AIR QUALITY: Would pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[Y] Pollutants and particulates would be produced by the mining activities within the amendment area and expanded mine plan. The expected levels of these pollutants and particulates would be within the approved Air Quality Permit. The proposed project area is not directly influenced by other air quality regulations (i.e. Class I Airshed).
4. VEGETATION COVER, QUANTITY AND QUALITY: Would vegetative communities be significantly impacted? Are any rare plants or cover types present?	[Y] A baseline vegetation inventory of the area was conducted by Bighorn Environmental, as reported in "Baseline Vegetation Inventory South Fork Expansion, Spring Creek Mine, Montana," October, 1991. No rare cover or community types were encountered in the survey. However, fifteen State ranked "S1" species were identified in the larger survey area which may or may not occur on the application area. Mining would remove existing vegetative communities and may affect one or more of these species. However, reclamation plans are designed to incorporate soil substrates, landscape and topographic diversity as mitigation measures. Vegetative resources would be affected for the short term; however, reclamation measures incorporated into the permits are designed for long term mitigation.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[Y] Wildlife surveys have been conducted each year since the mine was permitted and since 1994 by Thunderbird Wildlife Consultants (now doing business as Thunderbird – Jones and Stokes), as reported in "Wildlife Monitoring, Spring Creek Mine, March 2006." Mining would affect existing terrestrial and avian species and their habitats; however, these resources are expected to reestablish following reclamation. Spring Creek annual wildlife reports from 1994-2005 have documented fifteen species of special concern. These species were observed within a much larger wildlife study area, not necessarily within this EA application 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 the black-tailed prairie dog, American white pelican, bald eagle, Northern goshawk, peregrine falcon, Franklin's gull, burrowing owl, Lewis' woodpecker, Red-headed woodpecker, blue-gray gnatcatcher, Cassin's kingbird and black and white warbler, as well as, two amphibians (Northern leopard frog and plains spadefoot toad) and one reptile (Northern sagebrush lizard). Reclamation plans are designed to incorporate soil substrates, landscape and topographic diversity as mitigation measures. Vegetative, terrestrial and avian resources would be affected for the short term; however, reclamation measures are incorporated in the permits for long term mitigation.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL	[N] No federally listed threatened or endangered species or its habitat is known to reside within the area of concern. No unique, endangered, fragile or limited environmental resource other than those discussed in response No. 4 and 5 above are known to occur.

<b>IMPACTS ON THE PHYSICAL ENVIRONMENT</b>	
RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	No wetlands occur within the application area.
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] The proposed amendment area was subjected to a Class III cultural resources inventory: no sites were located. There would be no further adverse effects upon known cultural resources from this permit amendment. In addition, 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.
8. AESTHETICS: Is the project on a prominent topographic feature? Would it be visible from populated or scenic areas? Would there be excessive noise or light?	[N] The Spring Creek Coal Mine is located on a private road removed from any populated areas. The facilities area, primarily the coal barn and rail loop, and some of the mining activity, is visible from state highway 314.
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Would the project use resources that are limited in the area? Are there other activities nearby that would affect the project?	[Y] See section 10 below.
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that would affect the project?	[Y] Livestock production and coal bed natural gas (CBNG) development are other activities in the vicinity with potential to affect the project. Livestock operations are present throughout the area; however, do not occur on the mine area or area of proposed development. The Operator and CBNG companies are working together in an effort to utilize co-existing resources. The proposed action allows additional mining; however, all additional coal removal would occur within the existing permit boundary. No significant impacts to or from CBNG development are expected.

<b>IMPACTS ON THE HUMAN POPULATION</b>	
11. HUMAN HEALTH AND SAFETY: Would this project add to health and safety risks in the	[N] Heavy equipment, trucks, loaders, and blasting would create hazards; however, the operator must comply with all MSHA and OSHA regulations. The operator currently utilizes proper precautions

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area?	to enhance safety and would continue in the best interest of its employees. The proposed operation should not significantly affect human health.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Would the project add to or alter these activities?	[Y] Historically, the area within the proposed amendment and the expanded mine area was pastureland and grazing land. The final reclamation plan aims to return the area to its previous use with equal to or greater vegetation production than pre-mining. There would, however, be a short-term lose of vegetative production during mining and reclamation of the area.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Would the project create, move or eliminate jobs? If so, estimated number.	[N] The proposal is not expected to create any new jobs; however, if permitted, the additional mining should further secure jobs presently in place.
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Would the project create or eliminate tax revenue?	[Y] The project would create added coal severance tax revenue due to additional coal recovery. The proposed project should not eliminate any tax revenues. It is expected that the mine would sustain production at current levels or at a somewhat increased level and not change the state or local tax base resulting from mine production.
15. DEMAND FOR GOVERNMENT SERVICES: Would substantial traffic be added to existing roads? Would 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.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: 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 for mining of the coal in this area remain current under lease MTM 069782.
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] The proposed mine area is not located in or adjacent to any wilderness or recreational areas. Recreation potential within the site is primarily limited to hunting by permission and occasional wildlife viewing.
18. DENSITY AND	[N] The project would not significantly affect any populated area.

<b>IMPACTS ON THE HUMAN POPULATION</b>	
DISTRIBUTION OF POPULATION AND HOUSING: Would the project add to the population and require additional housing?	Neither population increase nor residential decrease would be incurred by approving the project.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N] Historic cultural references are fully covered under Item 7, Historic and Archeological Sites. Known native or traditional lifestyle issues in the amendment area are covered by consultation with the Northern Cheyenne Tribe and OSM. While there are known to be species of plants with traditional Native American utilization, none of them are unique occurrences.
20. CULTURAL UNIQUENESS AND DIVERSITY: Would the action cause a shift in some unique quality of the area?	[N] The project is not expected to change anything significantly that has not been inventoried and mitigated in item 7.
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]
22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated persons private property? If not, no further analysis is required.	[N]
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 would 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	[Y] The mine operator is the land owner and the Federal Government owns the coal. Proposed state government activities would place some restrictions on the owner's use of the property, but not sufficiently enough to constitute a taking because the owner is not deprived of property or of all economic uses of that property.

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the restriction on the use of private property, and analyze such alternatives.	
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[N]

References

Montana Department of Environmental Quality. 1999. Approximate Original Contour guidelines.

Montana Department of State Lands. 1981. South Fork of Spring Creek Significance Determination, (9/10/81 letter to NERCO, Inc.)

Montana Department of State Lands. 1989. Alluvial Valley Floor Decision Document, South Fork of Spring Creek. Reassessment of September 1981 Determination.

Nicklin, Michael, 2005. Spring Creek Coal Mine Groundwater Model, Nicklin Earth and Water, Bozeman, MT.

Spring Creek Coal Company. 1998. Carbone Amendment Permit application 00164 and subsequent revisions.

25. Alternatives Considered:

No Action: This alternative would allow Spring Creek Coal Company to complete mining and reclamation under the current permit. The proposed 157.6 acres would remain outside the permit area; no additional cuts would occur, eliminating 133.60 acres of mining disturbance and approximately 30,554,000 tons of coal recovery.

Approval: This alternative would add 30,554,000 tons of coal and 157.6 acres to the Spring Creek Coal mine plan along with associated disturbances as discussed in this EA.

- 26. Public Involvement: Availability of this Environmental Assessment was published in Sheridan Press.
- 27. Other Governmental Agencies with Jurisdiction: The USDI, Bureau of Land Management would monitor coal recovery from the Federal coal lease.
- 28. Magnitude and Significance of Potential Impacts: Impacts of the entire operation were analyzed in the EIS. There would be no significant impacts associated with this expansion.
- 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:** Julian Calabrese  
Reclamation Specialist/Soil Scientist

**Approved By:**

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Signature \_\_\_\_\_ Date