

**U.S. Department of the Interior  
Bureau of Land Management  
Little Snake Field Office  
455 Emerson Street  
Craig, CO 81625-1129**

**DRAFT ENVIRONMENTAL ASSESSMENT**

**EA-NUMBER:** DOI-BLM-CO-N010-2010-0003-EA

**PERMIT/LEASE NUMBER:** COC 74219

**PROJECT NAME:** Sage Creek Coal Company LLC 400 acre Lease by Application

**LEGAL DESCRIPTION:** T. 5 N., R. 87 W. of the 6th PM  
Sec. 22, N½  
Sec. 22, NW¼SW¼  
Sec. 21, NE¼NE¼

**APPLICANT:** Sage Creek Coal Company LLC

**PLAN CONFORMANCE REVIEW:** The proposed action is subject to the following plan:

Name of Plans: Little Snake Resource Management Plan and Record of Decision

Date(s) Approved: April 26, 1989

Results: The proposed action has been reviewed for conformance with the Little Snake Resource Management Plan (43 CFR 1610.5, BLM 1617.3) and is in conformance with the objectives for Management Unit 1.

Remarks: Sage Creek Coal Company LLC (SCC) submitted a Federal coal lease-by-application located within Management Unit 1 of the Little Snake Resource Management Plan. This unit has been rated as possessing the highest favorability for the occurrence of coal, oil, and gas resources in the Little Snake Resource Area. The objective of Management Unit 1 is to realize the potential for development of coal, oil, and gas resources.

**PURPOSE AND NEED FOR PROPOSED ACTION:** To allow development of federal coal resources to meet the public's continuing economic demands for a dependable and affordable energy, while giving due consideration to the protection of other resource values; and facilitate development of the coal resources within federal mineral leases in accordance with the Mineral

Leasing Act of 1920, as amended.

The requested Federal Action is needed to expand development of an existing coal mine, while maintaining the rights and obligations of other users and protecting resources in the project area.

**PUBLIC SCOPING PROCESS:** This project is listed on the Little Snake Field Office's NEPA log, posted on its web site. A press release has been issued to notify the public that this preliminary final environmental analysis is available for review. There will be a public hearing requesting public comments on the maximum economic recovery and fair market value of the coal resources. The public may also submit public comments at this hearing. The date, time, and location of the public hearing will be advertised in both the Federal Register and in local newspapers. BLM will address comments received during this review period and incorporate substantive comments into the final EA and Decision Record. Interested publics that comment on this preliminary EA will be notified when a final EA and Decision are released by the BLM.

**BACKGROUND:** Coal is a federal asset, subject to leasing to meet the objectives of the Bureau of Land Management (BLM) – Energy and Non-Energy Mineral Policy, dated April 21, 2006. Sage Creek Coal Company LLC has submitted a Lease-by-Application for approximately 400 acres of Federal coal located in Routt County, Colorado for the Sage Creek Coal Company Mine. The leasing of this Federal coal is consistent with the Little Snake Resource Management Plan (April 26, 1989). This lease by application involves leasing underground Federal coal reserves beneath private lands.

In June 2003, the U.S. District Court of Appeals, District of Columbia District ruled that subsidence does not fall under the definition of “surface coal mining operation” in Section 701(28) and is not a prohibitions contained under Section 522(e) of the Surface Mining Control and Reclamation Act of 1977. Whereas the unsuitability criteria strictly involved surface coal mining disturbance, this lease-by-application involves strictly underground coal reserves. Therefore since the unsuitability criteria related to surface coal mining in the Fish Creek alluvial valley floor and floodplain does not apply, underground coal mining is classified as suitable for this mining lease.

#### **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:**

**PROPOSED ACTION:** The proposed action is to issue a Federal coal lease for approximately 400 acres of previously un-leased Federal coal administered by the Bureau of Land Management in response to Sage Creek Coal Company LLC's (SCCC) lease-by-application. The surface of the 400 acres is privately owned. This 400 acre tract is located at the southern border of the Sage Creek Mine permit boundary. There will be no surface facilities, vent holes or shafts on the 400 acres; there will be vent shafts to provide mine ventilation as required by Mine, Safety and Health Administration (MSHA). This lease will be accessed from the Sage Creek Mine; the Sage Creek Mine will mine State, private and Federal coal.

For the purpose of analysis, subsidence caused by underground mining will be analyzed. Continuous miners will excavate entries (gate-roads) for longwall panel development. With the uncertainty of potentially adverse mining conditions associated with the steep grades of the coal beds, continuous miners will develop five sets of 3-entry longwall gate-roads for four longwall panels. If the development of the gate-roads proves operationally feasible, the longwall panels will be mined. If only gate-roads are mined, there will be no surface disturbance; if the longwall panels are mined, subsidence associated with longwall mining could result in subsidence effects on the surface. These effects include variations in the surface over distance and cracking. Coal from SCCC will be trucked on Routt County Road 27, or transported by underground conveyor to the existing processing facilities at Twentymile Coal Company's Foidel Creek Mine. The coal is then transported by truck or rail to market.

SCCC has submitted all the required documents and permits to the Colorado Division of Reclamation, Mining and Safety (CDRMS) to comply with all applicable laws. A permit to conduct underground mining at the Sage Creek Mine was issued August 20, 2010.

**NO ACTION ALTERNATIVE:** The lease-by-application would be denied; Federal coal would not be leased and consequently, 3.2 million tons of federal coal would be bypassed.

### **Alternatives Considered but Eliminated from Detailed Analysis**

If an alternative is considered during the EA process but the agency decides not to analyze the alternative in detail, the Lead Agency must identify those alternatives and briefly explain why they were eliminated from detailed analysis ([40 CFR 1502.14](#)). An action alternative may be eliminated from detailed analysis if:

- It is ineffective (does not respond to the purpose and need).
- It is technically or economically infeasible (consider whether implementation of the alternative is likely given past and current practice and technology).
- It is inconsistent with the basic policy objectives for the management of the area (such as, not in conformance with the LUP).
- Its implementation is remote or speculative.
- It is substantially similar in design to an alternative that is analyzed.
- It would have substantially similar effects to an alternative that is analyzed.

### **Methane Capture**

An alternative to capture the methane was considered, but eliminated from detailed analysis. The methane capture alternative was eliminated from detailed analysis due to the environmental impacts and the economic infeasibility associated with the infrastructure required to capture the methane. The development and implementation of one or more alternative technologies for mitigating the release of methane is economically infeasible and technically difficult. Based on the "Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2008" (EPA Publication 430-

R-10-006, April 15, 2010), total Coal Mining related CH<sub>4</sub> Emissions in 2008 were 67.6 tg (teragrams = million metric tons) and total U.S. GHG emissions were 6,956.8 tg CO<sub>2</sub> equivalent contribution to the global climate.

### **Methane Flaring**

The alternative to flare the methane was also considered and eliminated from detailed analysis. Any proposed flaring system intended for use at a coal mine in the United States would need to be approved by the Mine Safety and Health Administration (MSHA). MSHA would conduct a thorough review of that proposed flaring system to establish the requirements for the system with no guarantee of an approval date; therefore, it is not likely that a thorough review and approval would occur prior to the development and operation of the mine expansion. Additionally, flaring of methane would result in the release of other air pollutants, including nitrogen oxides, carbon dioxide, and carbon monoxide.

### **AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES**

For the following resources and issues, those brought forward for analysis will be addressed below.

<b>Resource/Issue</b>	<b>N/A or Not Present</b>	<b>Applicable or Present, No Impact</b>	<b>Applicable &amp; Present and Brought Forward for Analysis</b>
Air Quality			X
Areas of Critical Environmental Concern	X		
Environmental Justice/ Socio-Economics			X
Cultural Resources			X
Flood Plains	X		
Fluid Minerals	X		
Forest Management	X		
Hydrology/Ground			X
Hydrology/Surface			X
Invasive/Non-Native Species		X	
Native American Religious Concerns			X
Migratory Birds			X
Paleontology		X	
Prime and Unique Farmland	X		
Range Management	X		
Realty Authorizations	X		
Recreation/Transportation	X		
Soils			X
Solid Minerals		X	

T&E and Sensitive Animals			X
T&E and Sensitive Plants	X		
Upland Vegetation		X	
Visual Resources	X		
Water Quality - Surface			X
Wetlands/Riparian Zones		X	
Wild and Scenic Rivers	X		
Wild Horse & Burro Mgmt	X		
Wilderness Characteristics/WSA's	X		
Wildlife - Aquatic	X		
Wildlife - Terrestrial			X

## AIR RESOURCES

### Affected Environment:

The Clean Air Act (CAA), which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and to the environment. The CAA established 2 types of national air quality standards:

- **Primary standards** – Primary standards set limits in order to protect public health, including the health of "sensitive" populations (such as asthmatics, children, and the elderly).
- **Secondary standards** – Secondary standards set limits in order to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings (EPA 2009).

### National Ambient Air Quality Standards (EPA 2011)

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm (10 mg/m <sup>3</sup> )	8-hour <sup>(1)</sup>	None	
	35 ppm (40 mg/m <sup>3</sup> )	1-hour <sup>(1)</sup>		
Lead	0.15 µg/m <sup>3</sup> <sup>(2)</sup>	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m <sup>3</sup>	Quarterly Average	Same as Primary	
Nitrogen Dioxide	53 ppb <sup>(3)</sup>	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour <sup>(4)</sup>	None	
Particulate Matter (PM <sub>10</sub> )	150 µg/m <sup>3</sup>	24-hour <sup>(5)</sup>	Same as Primary	
Particulate Matter (PM <sub>2.5</sub> )	15.0 µg/m <sup>3</sup>	Annual <sup>(6)</sup> (Arithmetic Average)	Same as Primary	

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
	35 µg/m <sup>3</sup>	24-hour <sup>(7)</sup>	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour <sup>(8)</sup>	Same as Primary	
	0.08 ppm (1997 std)	8-hour <sup>(9)</sup>	Same as Primary	
	0.12 ppm	1-hour <sup>(10)</sup>	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour <sup>(1)</sup>
	0.14 ppm	24-hour <sup>(1)</sup>		
	75 ppb <sup>(11)</sup>	1-hour	None	

<sup>(1)</sup> Not to be exceeded more than once per year.

<sup>(2)</sup> Final rule signed October 15, 2008.

<sup>(3)</sup> The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard

<sup>(4)</sup> To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).

<sup>(5)</sup> Not to be exceeded more than once per year on average over 3 years.

<sup>(6)</sup> To attain this standard, the 3-year average of the weighted annual mean PM<sub>2.5</sub> concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m<sup>3</sup>.

<sup>(7)</sup> To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m<sup>3</sup> (effective December 17, 2006).

<sup>(8)</sup> To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

<sup>(9)</sup> (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(c) EPA is in the process of reconsidering these standards (set in March 2008).

<sup>(10)</sup> (a) EPA revoked the [1-hour ozone standard](#) in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").

(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

<sup>(11)</sup> (a) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

The State of Colorado implements the NAAQS, and develops air quality attainment and maintenance plans, in order to keep Colorado in compliance with the Federal NAAQS. According to the 2007 Colorado Air Quality Control Commission Report to the Public, the proposed lease is located within the Western Slope Region for air quality planning (CDPHE 2008). This region is currently in attainment for all NAAQS.

The lease area is designated as a Class II Area, as defined by the Federal Prevention of Significant Deterioration (PSD) provision of the CAA. The PSD Class II designation allows for moderate growth or degradation of air quality within certain limits above baseline air quality. Currently, OMLLC operates the Elk Creek Mine under air emission discharge permits obtained from the State of Colorado.

Fugitive dust from roads, agriculture, energy development, and controlled and uncontrolled vegetation burns are the primary sources of air quality impacts in this region.

The State of Colorado implements the NAAQS, and develops air quality attainment and maintenance plans, in order to keep Colorado in compliance with the Federal NAAQS. The proposed lease is located within Moffat County. This region is currently in attainment for all NAAQS.

The lease area is designated as a PSD Class II Area, as defined by the Federal Prevention of Significant Deterioration (PSD) provision of the CAA. The PSD Class II designation allows for

moderate growth or additional emissions within certain limits above baseline air quality. The closest PSD Class I areas (which require the most stringent protection for air quality) are Mount Zirkel and Flat Tops Wilderness Area, located 25 miles to the Northeast and 20 miles South of the proposed LBA area, respectively.

SCCC has submitted an application to the Colorado Department of Public Health and Environment, Air Pollution Control Division (APCD), for an air emissions permit. If approved the permit will identify the anticipated air emissions and describe the measures for their control.

### **Environmental Consequences, Proposed Action:**

When the mine is constructed and is operating, effects of that proposed action may include emissions associated with activities or sources such as: stock piles, number and usage of haul roads, number of vehicle miles traveled, type of dust control used on roads (i.e. gravel, watering, etc.), vehicle capacity, acres of disturbed site area, crushers, screens, conveyors, number of transfer points, stationary diesel engines for generating electricity and associated engine tier, haul trains, type of train engine, weight of train, and idle time, among others.

Emissions associated with these activities include criteria pollutants as well as greenhouse gases, such as fine particulate matter (PM<sub>2.5</sub>), PM<sub>10</sub>, oxides of nitrogen, volatile organic compound (VOCs), and carbon dioxide, nitrous oxide, and methane. Particulate matter would be emitted when vehicles associated with the mining activities travel on existing dirt roads or overland access routes to processing and loadout locations. Additional emissions of particulate matter would be generated from processing equipment, transfer points, the train loadout, and ventilation shafts. Air quality would also be impacted by engine exhaust emissions, locomotive emissions, and other diesel engine emissions (such as generators).

Environmental Consequences, No Action: The lease-by-application would be denied and air quality would not be affected. Mining of the 400 acre lease would not be permitted. Levels of emissions associated with the existing Foidel Creek mine would continue until mining is completed. Air emissions associated with proposed mining of the lease-by-application would not occur.

Mitigative Measures: None

### **AREA OF CRITICAL ENVIRONMENTAL CONCERN**

Affected Environment: Not present

Environmental Consequences, both alternatives: Not applicable

Mitigative Measures: Not applicable

## CULTURAL RESOURCES:

Affected Environment: Cultural resources, in this region of Colorado, range from late Paleo-Indian to Historic. For a general understanding of the cultural resources of the area, see *An Overview of Prehistoric Cultural Resources, Little Snake Resource Area, Northwestern Colorado*, Bureau of Land Management Colorado, Cultural Resources Series, Number 20, *An Isolated Empire, A History of Northwestern Colorado*, Bureau of Land Management Colorado, Cultural Resource Series, Number 2 and *Colorado Prehistory: A Context for the Northern Colorado River Basin*, Colorado Council of Professional Archaeologists.

Environmental Consequences, Proposed Action: Sage Creek Coal Company LLC has conducted a Class II cultural resource survey of the area:

Nelson, Amy, Michael D. Metcalf, and Kenneth P. Cannon  
2009 Peabody Energy Twentymile Coal Company Sage Creek Subsidence Project: A Class II Cultural Resource Inventory (BLM #54.1.2010)

The State Historic Preservation Office (SHPO) concurred on the use of the Class II survey on September 16, 2008 (CHS# 53289; BLM 10.41.08). The survey identified twelve (12) sites potentially eligible for listing on the National Register of Historic Places, or sites that need additional data to determine their eligibility. Mitigation of these sites will be determined at the mine permitting stage in consultation with the SHPO. The proposed lease-by-application may proceed as described with the following mitigative measures in place.

Mitigative Measures: The lease-by-application may proceed with the understanding that the twelve (12) sites identified (5RT20, 5RT22, 5RT139, 5RT512, 5RT519, 5RT1368, 5RT1369, 5RT1370, 5RT2737, 5RT2739, 5RT2741, 5RT2745) need data recovery in order to determine eligibility for listing on the National Register of Historic Places. These sites must be reviewed at the permitting state to determine the appropriate and necessary mitigation measures.

The following standard stipulations apply for this project:

1. The operator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the Authorized Officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places;



- The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and
  - Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.
2. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

Environmental Consequences, Proposed Action: The lease-by-application would be denied and cultural resources would not be affected.

## **ENVIRONMENTAL JUSTICE**

Affected Environment: The lease-by-application is located in an area of isolated dwellings where mining, oil and gas production, and ranching are the primary economic activities.

Environmental Consequences, both alternatives: The lease-by-application is relatively isolated from population centers, so no populations would be adversely affected by physical or socioeconomic impacts of either alternative. Neither alternative would directly affect the social, cultural or economic well-being and health of Native American, minority or low-income populations.

Mitigative Measures: None

## **FLOOD PLAINS**

Affected Environment: No floodplains exist in the area affected by the lease-by-application.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

## **INVASIVE, NONNATIVE SPECIES**

Affected Environment: Houndstongue, hoary cress (whitetop), Canada thistle, and other biennial thistles are known to occur in this area. There is the potential for other noxious weeds, such as Dalmatian toadflax, yellow toadflax, leafy spurge, knapweeds, perennial pepperweed and others, to exist and spread in the area of the proposed action.

Environmental Consequences, Proposed Action: Since recovery of the Federal coal in the lease-by-application will be by underground mining methods with no surface disturbance it is not anticipated that would be an increase of noxious or invasive species throughout the affected area.

Environmental Consequences, No Action: The lease-by-application would be denied and invasive species would not be affected.

Mitigative Measures: None

## **MIGRATORY BIRDS**

Affected Environment: The proposed coal lease area provides potential habitats for Brewer's sparrow and sage sparrow. Both species are listed on the U.S. Fish & Wildlife Service's 2008 Birds of Conservation Concern List.

Environmental Consequences, Proposed Action: It is possible that subsidence resulting from underground mining activities could have an insignificant impact on nesting Brewer's sparrows and sage sparrows. Subsidence could disrupt nesting during the breeding season causing a loss of the nest however the chances of a take would be low and disturbed sparrows may relocate and nest again. There is a potential that surface facilities would need to be constructed in order to complete underground mining activities. The surface facilities could have an impact on nesting birds and their impacts would be analyzed by the Colorado Division of Reclamation, Mining and Safety as they were proposed.

Environmental Consequences, No Action Alternative: There would be no impacts to either Brewer's sparrow or sage sparrow as a result of the No Action Alternative.

Mitigative Measures: None

## **NATIVE AMERICAN RELIGIOUS CONCERNS**

A letter was sent to the Eastern Shoshone, Uinta and Ouray Tribal Council, Southern Ute Tribal Council, and the Ute Mountain Ute Tribal Council on May 26, 2009. The letter listed the Fiscal Year 2010 projects that the Bureau of Land Management (BLM) would notify

them on and those projects that would not require notification. A follow-up phone call was performed on July 26, 2009. No comments were received (Letter on file at the Little Snake Field Office). This lease-by-application requires no additional notification.

## **PRIME & UNIQUE FARMLANDS**

Affected Environment: Not present

Environmental Consequences, both alternatives: None

Mitigative Measures: None

## **THREATENED AND ENDANGERED ANIMAL SPECIES**

Affected Environment: There are no threatened or endangered species or habitats for such species present within the proposed lease-by-application area. The area does provide breeding and nesting habitat for the candidate greater sage-grouse and Columbian sharp-tailed grouse. The greater sage-grouse is a federally listed candidate species and both species are BLM special status species.

Environmental Consequences, Proposed Action: There would be no impacts to threatened and endangered species or their habitats. It is possible that subsidence resulting from underground mining activities could have an insignificant impact of the Columbian sharp-tailed grouse and the greater sage-grouse. There is a potential that surface facilities would need to be constructed in order to complete underground mining activities. The surface facilities could impact the Columbian sharp-tailed grouse and the greater sage-grouse and their impacts would be analyzed by the Colorado Division of Reclamation, Mining and safety as they were proposed. As a part of its permit application package, Sage Creek Coal Company LLC has a "Fish and Wildlife Plan" to provide for protection measures to be taken for the protection of the Columbian sharp-tailed grouse and the greater sage-grouse.

Environmental Consequences, No Action Alternative: There would be no impacts to threatened, endangered or special status species or their habitats as a result of the No Action Alternative.

Mitigative Measures: **CO-2**, No surface occupancy (NSO) within ¼ mile radius of a lek site.

## **T&E AND SENSITIVE PLANTS**

Affected Environment: There are no federally listed threatened or endangered or BLM sensitive plant species in the vicinity of the proposed action.

Environmental Consequences, all alternatives: None.

Mitigative Measures: None.

## **WASTES, HAZARDOUS OR SOLID**

Affected Environment: There are no hazardous or solid wastes within the project area.

Environmental Consequences: There will be no impacts from hazardous wastes.

Environmental Consequences, No Action: There would be no impacts under the No Action alternative.

Mitigative Measures: None

## **WATER QUALITY - GROUND**

Affected Environment: The surface formations are the Cretaceous Lewis Shale and the Cretaceous Williams Fork, member of the Mesa Verde. Groundwater would be impacted by the mining of approximately 400 acres of coal.

Environmental Consequences, Proposed Action: Groundwater has been addressed in the existing environmental documents for the existing adjacent mining operations at the Foidel Creek mine. These documents include: The Green River/ Hams Fork EIS, CO-100-2005-021EA, CO-100-2006-075EA, CO-100-2008-058EA. With proper mining practices and by following the mitigation address in the approved mine plan and environmental documents, there would be no significant environmental consequences to groundwater.

Environmental Consequences, Proposed Action: There would be no impact to ground water.

Mitigative Measures: None

## **WATER QUALITY - SURFACE**

Affected Environment: Runoff from the area affected by the proposed action would flow to Fish Creek, a perennial tributary to Trout Creek, and Grassy Creek, a perennial tributary to the Yampa River. The water quality of Fish Creek must support Aquatic Life Cold 1, Recreation E, and Agricultural beneficial uses:. Water quality of Grassy Creek must support Aquatic Life Warm 2, Recreation N, and Agricultural beneficial uses.

Longwall mining in the vicinity has occurred since about 1988 and runoff water from the subsided areas, as well as, mine inflows has flowed or been released into Fish Creek. The adjacent Foidel Creek mine operated by Twentymile Coal Company makes use of and recycles much of the mine inflow water in various mining activities, especially dust suppression. The subsequent handling and holding of this water tends to increase the total dissolved solids (TDS) levels.

The Colorado Department of Public Health and Environment, Water Quality Control Division has issued Colorado Discharge Permit System (CDPS) discharge permits for various discharge points, including Fish Creek. At the Foidel Creek mine current TDS levels in these creeks are monitored upstream of the mine activities and discharges are treated to meet CDPS discharge permit effluent limits. Discharge water is also treated with sodium hydroxide (NaOH) to maintain the pH of the water between 8.8 and 9 to precipitate iron and lower the TDS. When the creeks are surging with spring runoff water more mine inflow water is released to the streams and the dilution effect reduces the concentration of TDS, iron and sodium to acceptable levels to meet classified uses downstream. Conversely, when low or no flows occur, the amount of water discharged is reduced accordingly.

Environmental Consequences, Proposed Action: Subsidence of the ground surface likely would cause localized gradient changes stream channels and potential pooling. Additional sediments could be generated in the short term from overland flow across soil surfaces however localized deposition is expected to occur within the stream channel, except during high runoff events. Slightly higher levels of TDS and Total Suspended Solids could result from sediment transport in the short term.

Environmental Consequences, No Action: Surface water quality would not be affected.

Mitigative Measures: None

Reference: Colorado Department of Public Health and Environment Water Quality Control Commission. 2008. Regulations #33, 37, 93 and 94.

<http://www.cdphe.state.co.us/regulations/wqccregs/index.html>

## **WETLANDS/RIPARIAN ZONES**

Affected Environment: There is an unnamed drainage within the proposed coal lease-by-application area on private surface land. There are no records of this drainage containing any riparian habitat.

Environmental Consequences, Proposed Action: Should there be riparian habitat within the unnamed drainage, there is slight chance that subsidence could result in changes in flow patterns. There is little chance that there would be any significant impact to the habitat.

Environmental Consequences, No Action Alternative: There would be no impacts to riparian

habitats as a result of the No Action Alternative.

Mitigative Measures: None

## **WILD & SCENIC RIVERS**

Affected Environment: Not Present

Environmental Consequences: Not Applicable

Mitigative Measures: Not Applicable

## **WSAs, WILDERNESS CHARACTERISTICS**

Affected Environment: Not Present

Environmental Consequences: Not Applicable

Mitigative Measures: Not Applicable

## **NON-CRITICAL RESOURCES**

### **SOCIO-ECONOMICS**

Affected Environment: The social and economic study area for the proposed lease action and associated mining includes Routt and Moffat counties and the communities of Steamboat Springs, Oak Creek, Hayden and Craig. These communities currently provide the workforce for the Foidel Creek Mine that will transition to the Sage Creek Mine, as well as providing mining services, retail, business and consumer services in the area. Steamboat Springs is the county seat of Routt County; Craig is the county seat of Moffat County.

#### ***Population***

Table 6 presents basic population and demographic information for Moffat County and the state of Colorado. Although the lease and mine are in Routt County, well over half the workforce resides in Moffat County. For that reason, the demographics of Moffat County are presented here, as the greater influence would be on the residents of Moffat County.

**Table 6. Population by Category, 2000 and 2009, Moffat County and the State of Colorado**

<b>Population</b>	<b>Moffat County</b>	<b>Colorado</b>
2000		
2009		

<b>Population</b>	<b>Moffat County</b>	<b>Colorado</b>
% Change	+6%	+16.8%
Male (2009)	51.8%	50.4%
Female (2009)	48.2%	49.6%
Under 5 years	7.7%	7.3%
Under 18 years	26.5%	24.4%
65 years and over	9.4%	10.6%
% Minority (2008)	19.2%	29.3%
% Below poverty (2008)	9.5%	11.2%

Source: US Census Bureau, <http://quickfacts.census.gov/qfd/states/08/08051.html>

Moffat County comprises 4,742.25 square miles with 2.8 people per square mile and a total population of 13,980 people in 2009. Moffat County grew by almost 800 people between 2000 and 2009. According to the Sonoran Institute (2004), Moffat County grew slower than the state but faster than the nation between 1970 and 2000, with an annual average growth rate of 0.67%. The median age in Moffat County is 35 years old, with 26.5 % of the population being under the age of 18 and almost 9.5% being 65 years or older. Over 79.6% of the people age 25 and older in Moffat County have graduated from high school, and just over 12% have graduated from college (US Census Bureau 2001).

The town of Craig is the largest town in Moffat County with a 2000 population of 9,190, an increase of 1,053 since 1990. Other communities in the county include Maybell (2000 population of 370), and Dinosaur (2000 population of 335), (US Census Bureau 2000). The 2009 US Census reports that there were 6,139 housing units in Moffat County that housed 4,983 households, indicating a vacancy rate of approximately 18.8 %. Approximately eight per cent of rental units were classified as vacant. There were 2.43 persons per household. Moffat County had a home ownership rate of 72.1% in 2000, well above the state average of 67.3 %. The median value of an owner occupied housing unit was \$104,600, well below the state average of \$166,600 (US Census Bureau 2001).

### ***Economic Resources***

The area of influence for economic resources is comprised of Routt and Moffat County. Moffat County is the county of residence for the majority of the mining personnel and supports most of the indirect employment that provides supplies and services to mine workers and their families.

Mining employment in Moffat County in 2009 was 1,000 full time jobs. (<http://www.bls.gov/lau/laucntycur14.txt>).

In 2009, Peabody Energy's Twentymile Coal Co., Foidel Creek Mine employed an average of 490 full and part time workers with an annual payroll of approximately \$28.3 million. These workers will gradually move to the Sage Creek Mine. Average mining wages in 2009

were more than twice the average wage for other employment sectors in the project area (\$23,254) (Region 10 Review, 2003). Peabody Energy estimates that for every one coal job, 3 service-sector jobs are supported. The Sage Creek Mine will spend many dollars locally for materials, supplies, and services. In addition, the Sage Creek will contribute royalty and tax payments to the local and national economy.

### ***Identification of Minority and Low Income Populations***

For purposes of this section, minority and low income populations are defined as follows:

*Minority populations* are persons of Hispanic or Latino origin of any race, Blacks or African Americans, American Indians or Alaska Natives, Asians, and Native Hawaiian and other Pacific Islanders.

*Low-income populations* are persons living below the poverty level. In 2000, the poverty weighted average threshold for a family of four was \$17,603 and \$8,794 for an unrelated individual. Estimates of these two populations were then developed to determine if environmental justice populations exist in Moffat County (see Table 6).

In 2009, Moffat County had a population of 31,322 persons, of which approximately 5,137 (16.4%) were minorities and approximately 3,790 (12.1%) were living below the poverty level. Minority populations were lower in Moffat County than in the state of Colorado; the low-income population in Moffat County was higher than for the state of Colorado. The Council on Environmental Quality (CEQ) identifies minority and low income groups as EJ populations when either (1) the population of the affected area exceeds 50 % or (2) the population percentage in the affected area is meaningfully greater (generally taken as being at least 10% more) than the population percentage in the general population of the region or state. Neither the minority population percentage nor the low-income population percentage meets the CEQ guidelines. As a result, it is assumed that no environmental justice populations exist within the area of influence, and no impact analysis is required.

### ***Protection of Children***

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997), recognizes a growing body of scientific knowledge which demonstrates children may suffer disproportionately from environmental health risks and safety risks. These risks arise because (1) children's bodily systems are not fully developed, (2) children eat, drink, and breathe more in proportion to their body weight, (3) their size and weight may diminish protection from standard safety features, and (4) their behavior patterns may make them more susceptible to accidents. Based on these factors, the President directed each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. The President also directed each Federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Children are seldom present at the coal mining facilities. On such occasions, the coal mining companies have taken and will continue to take precautions for the safety of children



by using a number of means, including fencing, limitations on access to certain areas, and provision of adult supervision. No additional impact analysis is required.

Environmental Consequences, Proposed Action: Assuming that the coal in the lease-by-application is approved and the existing Twentymile Coal Company's Foidel Creek mine's operations and facilities will be used, there would be no new or added employment at the Sage Creek Mine. No additional demand for housing or municipal services would be anticipated. Mining operations would be extended throughout the period required to mine recoverable coal reserves. This extension of mining operations would also extend the annual payroll, local expenditures, and taxes and royalty payments for approximately six months. In response to a lease-by-application, a lease sale may be held. Bonus bids result from the open, competitive auction process when a lease is offered. The successful competitive bid must not be less than the Fair Market Value (FMV) of the coal on a per ton basis. Royalties from federal coal mined by underground methods is 8 percent of the gross sales price. The rental of the lease area is \$3.00 per acre per year, or \$1,200.00 per year for this 400 acre lease. The revenues from the bonus bid, rental, and royalties of a lease go to US Treasury General Fund and to the State of Colorado. In general, the US Treasury receives 50% of the revenues, the State of Colorado 50% of the revenues. The BLM receives annual payments from coal lease holders based on rents at not less than \$3.00 per acre. The rental rates are specified in the lease. Royalty payments are 8% of the value of the coal removed from an underground mine (43 CFR 3473). Royalties from the Federal coal are distributed in the following way: 50% returns to the Federal treasury in the general fund. The other 50% is returned to the State where the coal was mined, with a portion of that percentage being returned to the county where the coal was mined. In Colorado, those funds are managed by the State Department of Local Affairs in the Energy Impact Fund. These monies are distributed on a grant-like basis to counties affected by energy resource development for community benefit projects.

Environmental Consequences, No Action Alternative: Under the No Action Alternative, the primary impact would be that the estimated 5.1 million tons of mineable federal coal would be permanently bypassed. Mining of the reserves at the Sage Creek Mine would continue at existing rates until the coal reserves are depleted. Reductions in jobs and associated salaries, local expenditures, royalty and tax payments would not be realized until after the reserves are depleted. The Federal government (US Treasury) would not receive the rents and royalties associated with mining the coal in the lease application. Royalties from underground coal are 8% of the sales price. Using November, 2010 average price of \$43.50 per ton, the lost revenues from the sale of 3.2 million tons of recoverable coal at 8% would be \$11,136,000.

Mitigative Measures: None

## **SOILS**

Affected Environment: Soils in the lease-by-application area are primarily derived from Lewis Shale and the Williams Fork Formation although smaller areas of Twentymile and Kit-Trout Creek sandstones have also contributed parent materials. Impass silty clay loam, 12 to 25 percent slopes; Impass silty clay loam, 25 to 40 percent slopes; Elkhead clay loam, 0 to 5 percent slopes; Lintim loam, 3 to 12 percent slopes; Impass silty clay loam, 3 to 12 percent slopes; and Phippsberg clay loam, 25 to 65 percent slopes are the predominant soils mapped overlying the lease-by-application area. All of the soils have deep soil profiles and high water holding capacities except for the Phippsberg which typically has a depth of 20 to 33 inches over weathered shale bedrock with a low water holding capacity. Permeability through the most restrictive soil layer of these soils is moderately low and all have a high shrink swell potential. These soils have a moderately high to high runoff rate.

Environmental Consequences, Proposed Action: The soil resource overlying the zone of subsidence is expected to remain intact with regards to important characteristics and properties. Some fracturing or loosening of the soil profile may occur in areas where the surface is flexed from the irregular pattern of subsidence and to a lesser degree some compression may result in and near the areas of maximum subsidence. These modifications to the soil profile could result in increased percolation of water in areas that were flexed and reduced percolation in areas which were compressed. These slight modifications to the soil profile are not expected to cause appreciable changes to the characteristics or properties of the soils, especially with regards to fertility or available soil moisture.

Environmental Consequences, No Action: Soils would not be affected.

Mitigative Measures: None

## **UPLAND VEGETATION**

Affected Environment: The plant communities in the lease-by-application area consist of sagebrush-grass and mountain shrub communities.

Environmental Consequences, all alternatives: Neither alternative would result in disturbance to existing plant communities.

Mitigative Measures: None

## **WILDLIFE, AQUATIC**

Affected Environment: There is no aquatic wildlife habitat present within the proposed project area.

Environmental Consequences, all alternatives: None

Mitigative Measures: None

## **WILDLIFE, TERRESTRIAL**

**Affected Environment:** The proposed lease-by-application area provides habitat for Mule Deer, Pronghorn Antelope and Elk. This area does not provide severe winter habitats for any of these species. In addition to big game animals, small mammals, songbirds and reptiles may be found within the proposed lease-by-application area at various times of the year.

**Environmental Consequences, Proposed Action:** It is possible that subsidence resulting from underground mining activities could have an insignificant impact on big game animals and is not likely to impact their habitat. Subsidence could result in the collapse of underground burrows resulting in some localized mortality to some individual wildlife. This impact is not likely to have impacts on any species populations.

**Environmental Consequences, No Action Alternative:** There would be no impacts to terrestrial wildlife species or their habitats as a result of the No Action Alternative.

Mitigative Measures: None

## **CUMULATIVE IMPACTS SUMMARY:**

Past and present actions in the area include coal mining, ranching, recreation, wildfire, and dispersed rural residential development. Past coal mining in the area includes the current underground Foidel Creek Mine, the surface Energy Fuels Mine, the surface Seneca Mines and the surface Edna Mine. Historically, the surface has also been and continues to be ranched; the area also supports wildlife. Foreseeable future actions include mining at the Foidel Creek Mine, mining of the Sage Creek Mine, future leasing of Federal coal, continued ranching activities, and continued dispersed residential development.

BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered in the cumulative impacts summary because it is a logical consequence of issuing a lease.

### **Climate Variability and Climate Change:**

According to the United States Global Change Research Program (2009), global warming is unequivocal and the global warming that has occurred over the past 50 years is primarily human-caused. Standardized protocols to measure factors that contribute to climate change and to quantify climatic impacts are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities on global climate change cannot be accurately estimated. Moreover, specific levels of significance have not yet been established by regulatory agencies. Therefore, climate change analysis for the purpose of this document is limited to a qualitative discussion accounting for Greenhouse Gas (GHG) emissions changes that would

contribute incrementally to climate change. Due to the incremental emissions of greenhouse gases from around the globe that may affect climate change, it is not possible to link any particular source of greenhouse gas emissions from coal leasing to any specific climate-related environmental effects.

Emissions of GHGs have been identified as a potential concern, given some evidence that they may trap heat in the atmosphere, preventing radiation losses, and resulting in increasing global temperatures. The mining, processing, and shipping of coal from the coal lease would contribute to greenhouse gas (GHG) emissions through carbon fuels used in mining and processing, including those consumed by heavy equipment and stationary machinery, electricity used on site, rail transport of the coal, exhaust from diesel engines used during operations, and through fugitive methane releases from the mined coal and mine ventilation shafts as required by MSHA. Use of the coal would also contribute to GHG emissions. Currently, there is no national policy or law in place that regulates GHG emissions. Potential impacts associated with development and production of mineral commodities are not typically considered, or evaluated in conjunction with proposed leasing actions due to the significant variables and uncertainties involved. Given, however, interest by the environmental community, and current political concerns, it is common for NGOs to request that the potential environmental impacts of “Greenhouse Gas” (GHG) emissions associated with coal leasing, and all subsequent mine development, and mine production, be considered and evaluated as part of the associated environmental analysis.

Since specific information regarding the potential construction and operations of the Sage Creek Company LLC mine is unknown at this time, it is not possible to estimate the quantities of greenhouse gases that may be emitted as a result of the coal mine operations. When such information is known and when a project plan is submitted to the BLM for review, BLM will provide estimates of greenhouse gas emissions in the emissions inventory that would be conducted.

However, since the total amount of coal residing underground, within the proposed lease, for extraction is estimated to be 3.2 million tons, and the heat content of that coal is also known it is possible to provide an estimate of the GHG emissions that might occur as a result of the combustion of that coal once it reaches its destination for consumption (see Combustion section below). While changes in temperature and climate vary significantly with time, and are subject to a wide range of driving factors and complex interrelationships, the level of GHG emissions can generally be quantified, and compared with overall estimates to provide some measure of the contribution to global atmospheric greenhouse gas concentrations.

### **Combustion**

Historically, the coal mined in Colorado has been used as one of the sources of fuel to generate electricity in power plants located throughout the U.S., and shipped overseas. The mines in Colorado have sold, and are expected to sell, coal into the open coal market. The mine’s ability to sell coal in this market is determined by the annual production rates at that mine. Coal sales are made on short term contracts or sold on a spot market. This market is very dynamic and competitive. During the coal lease modification process, it is uncertain and speculative to predict who might purchase future Colorado coal, how it would be used,

and where the coal might be transported to. Moreover, the restrictions and control measures vary by the location in which the coal is burned.

Coal-burning power plants currently supply about 50 percent of the electric power generated in the U.S. The demand for power is increasing in the U.S. and throughout the world. According to a recent report by NERC, peak demand for electricity in the U.S. is expected to double in the next 22 years (Associated Press 2007). Many developing countries, including China and India, are also relying heavily on coal to meet their rapidly increasing power demands as coal is more economical and more available than other sources of electrical generation. The regulatory mechanisms proposed under the Climate Security Act of 2008, as well as the past regulation of pollutants under the CAA, are imposed at the point when coal is burned and converted to electric energy. A percentage of coal produced in Colorado is sold in an open market where coal is purchased on short term contracts or spot prices based on a coal feed stock that is suitable for each buyer's power generating facility. Coal production at any one mine is not tied in any predictable way over a period of time to any one power plant.

According to the U.S. Energy Information Administration (2009), nearly 94 percent of all coal consumed in the U.S. during 2009 was used in the generation of electric power. Because of this, it can reasonably be assumed that the coal will be shipped to a coal-fired power plant. It would be possible to provide a quantification of GHG emissions associated with the burning of the mined coal at a specific facility; however, the types and location of the facilities the coal might be processed in is speculative and not foreseeable. The terms of the agreements between the coal combustion facilities and the coal company are not within the regulatory authority of the BLM. The contractual agreements between the coal plant and the coal company are outside the scope of this analysis, and the BLM does not determine at which facilities the coal is used. The EPA and state governments provide the regulatory emissions standards for the combustion of the coal. Different emissions control devices on a power plant could greatly affect the amount of carbon dioxide that is released into the atmosphere. (For example, a power plant that practices CO<sub>2</sub> capture would ultimately release a much smaller quantity of CO<sub>2</sub> than a traditional power plant that is 50 years old.)

In order to calculate the CO<sub>2</sub> equivalent emissions from coal, the following information would be needed:

- the number of tons of coal produced per year from a mine;
- the heat content of that coal in BTUs per ton; and
- the facility in which the coal is slated to be burned.

Even though the BLM cannot reasonably predict the destination of where the coal will be burned, it is still possible to do emissions calculation if the number of tons of coal produced per year from a mine, and the heat content of that coal in BTUs per ton, is known. This information is known for the proposed lease tract. For the proposed coal leasing activity, it is

reasonable to assume that the associated recoverable coal reserves will be developed, produced, and subsequently utilized to produce electricity using current, conventional coal combustion and emission control technologies. Note that any potential GHG impacts associated with utilization of the coal as boiler fuel for generation of electricity would be addressed in the environmental analysis for the generation facilities, and so are not addressed in this analysis.

However since the type of facility the coal might be processed in (i.e., the control efficiency of the facility) is speculative; calculations were made using average numbers in U.S. facilities. Therefore the emissions calculation does not represent an accurate estimate of potential GHG emissions from this specific project. That said, assuming the Proposed Action Alternative would generate 3,243,000 tons of coal for the proposed lease tract, with a maximum annual production from the reserve of approximately 975,600 tons (based on current conceptual mine plan layouts for the Sage Creek Mine). The coal is assumed to be low-sulfur compliant bituminous coal, with an average heat content of 12,802 dry British thermal units (BTUs) per ton.<sup>1</sup> Therefore, maximum annual and total CO<sub>2</sub> equivalent emissions associated with the subject coal reserves are as follows: nearly 1,168 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) would be emitted per year, and a total of nearly 3,993 metric tons CO<sub>2</sub>e could be emitted as a result of the entire coal reserve being mined (3,423,000 tons of coal). The total amount, 3,993 metric tons CO<sub>2</sub> equivalent, represents over 3 percent of all CO<sub>2</sub>e emissions in Colorado during 2007, and .0005 percent of all CO<sub>2</sub>e emissions in the U.S. during 2007 (CAIT-US 2011). These calculations are based upon default emission factors for stationary combustion in the Energy Industries (IPCC 2006), assuming no other use of the coal and complete total combustion, and therefore represent a conservative overestimate of potential GHG emissions.

Based on the “Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2008” (EPA Publication 430-R-10-006, April 15, 2010), total Coal Mining related CH<sub>4</sub> emissions in 2008 were 67.6 million metric tons (mmt), and total U.S. GHG emissions were 6,956.8 mmt of CO<sub>2</sub> equivalent. Based on this analysis (limited to U.S. GHG emissions), the calculated GHG emissions associated with the proposed coal leasing action are so small as to be negligible relative to any potential impacts on global temperatures. If the calculated GHG emissions are compared with global figures (2005 CO<sub>2</sub> equivalent emissions of 26,544 mmt, “World Development Report 2010: Development and Climate Change, World Bank, 2010), the relative significance of the numbers is further reduced.

Regardless of the accuracy of emission estimates, accurately predicting the degree of impact any single emitter of GHGs may have on global climate change or the changes to biotic and

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<sup>1</sup> This figure was derived using the Energy Information Administration’s carbon dioxide emission factor for Colorado Bituminous coal, which is 206.2 lbs CO<sub>2</sub> per million BTU.

abiotic systems that accompany climate change is not possible at this time. As such, the controversy is to what extent GHG emissions resulting from implementation of the Proposed Action may contribute to global climate change as well as the accompanying changes to natural systems. The degree to which any observable changes can or would be attributable to the Proposed Action cannot be reasonably predicted at this time.

### **EPA Regulations**

In its *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*, the EPA determined that GHGs are air pollutants subject to regulation under the CAA. The EPA is in the early stages of determining how to regulate carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. As of March 2011, the EPA has not set GHG emission limits for stationary sources. However, the EPA is gathering detailed GHG emission data from thousands of facilities throughout the U.S., and will use the data in order to develop an improved national GHG inventory, as well as to establish future GHG emission control regulations. Beginning in 2010, many facilities across the US, including coal fired power plants, estimated GHG emissions in accordance with the EPA's "Greenhouse Gas Mandatory Reporting Rule" and will report annual GHG emissions beginning on March 31, 2011.

Beginning in 2011, GHG emissions from some facilities will become subject to Federal air quality permitting programs, such as the Title V Operating Permit Program and the Prevention of Significant Deterioration (PSD) Program. Historically, GHG emissions were not measured by facilities under these programs, and air quality permits did not address greenhouse gases. However, the EPA, as well as State and local air quality permitting agencies, will begin reviewing GHG emissions under these programs in accordance with the EPA's "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule." This review may lead to more accurate estimates of GHG emissions from these facilities, and may prompt GHG emission monitoring in some cases.

Based largely upon GHG emission data submitted under the Mandatory Reporting Rule, the EPA plans to develop stationary source GHG emissions reduction rules that could mandate substantial reductions in U.S. greenhouse gas emissions. Alternatively, Congress may develop cap-and-trade legislation as another means to reduce GHG emissions.

Consequently, a GHG emissions calculation for coal burned at a power plant is likely to be increasingly regulated in the near future. The first EPA regulation to limit emissions of GHGs imposed carbon dioxide emission standards on light-duty vehicles, including passenger cars and light trucks (GPO 2010e). As of February 2011, the EPA had not set GHG emission limits for stationary sources (such as compressor stations); however, the EPA is gathering detailed GHG emission data from thousands of facilities throughout the U.S., and will use the data in order to develop an improved national GHG inventory, as well as to establish future GHG emission control regulations.

**Environmental Justice:**

There would be no cumulative environmental justice effects from continued mining and other rural development in the Sage Creek area.

**Socioeconomics:**

Mining of the coal also has future foreseeable effects on socio-economics. The population centers nearest to the Sage Creek Mine are the city of Steamboat Springs and the communities of Oak Creek and Hayden in Routt County, and Craig in Moffat County. Presently, Peabody's Foidel Creek Mine is operating adjacent to the 400 acre lease-by-application. In the past and presently, Peabody pays sales taxes, property taxes, royalties, and other payments. According to Peabody's Sage Creek Permit Application, Peabody has paid the following:

- ❖ \$4.2 million in property taxes.
- ❖ \$1.3 million in sales and use taxes.
- ❖ \$13.0 million in royalties.
- ❖ \$1.0 million to the Abandoned Mine Fund.
- ❖ \$7.9 million to the Black Lung Fund.
- ❖ In addition to taxes and other payments, Peabody made charitable donations of nearly \$69,000 to area organizations.
- ❖ Peabody's sales from its Colorado mining operations in 2008 were approximately
- ❖ \$255.1 million, generating additional sales by other businesses in Routt County of
- ❖ \$107.4 million (Peabody 2009).
- ❖ Peabody employed 534 people in its Foidel Creek Mine operations in 2008, generating 1,242 additional jobs in the local economy (Peabody 2009).

According to the Peabody Sage Creek Mine Permit Application, Peabody proposes to construct and operate the Peabody Sage Creek Mine (PSCM) under an initial 5-year permit, with construction in Year 1 and coal production ranging from 0.5 million tons per year (MTPY) in Year 2 to 2.5 MTPY in Year 5 using continuous miners. If mining and market conditions are favorable, the mine could expand from continuous mining during the initial 5-year period to full scale longwall operations, producing as much as 8 to 12 MTPY over the mine's life. The Sage Creek Mine would replace the currently operating Foidel Creek Mine (CDRMS permit C2009-087).

Peabody's Sage Creek Mine is proposed to gradually replace the Foidel Creek Mine. The cumulative effects on the estimated earnings on the wages and benefits to the local economy include wages and benefits to employees, income to local businesses, and taxes currently paid by Peabody due to the operation of the Foidel Creek Mine would continue with the operation of the Sage Creek Mine.

The cumulative socioeconomic effects of continued mining would include a constant level of employment and tax revenues during the operation of the mine and the removal of that source of income when the mine is closed. Residential and other development activities would increase the local population and infrastructure in the area.

On a cumulative basis, if the lease-by-application were not approved, and not offered for sale,



coal mining in the Twentymile Park Area would continue until existing reserves are depleted. At that point, the mining employment sector would be terminated. Mining the coal reserves in the lease-by-application would increase the life of mine. The cumulative social and economic effects of past, present and reasonably foreseeable actions in the Moffat County and Routt County area relative to coal mining operations would be to extend the mining employment sector proportionately to the length of the remaining reserves.

## **STANDARDS:**

### **STANDARDS FOR PUBLIC LAND HEALTH**

In January 1997, Colorado BLM approved the Standards for Public Land Health. The five standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Environmental analyses of proposed projects on BLM land must address whether the Proposed Action or alternatives being analyzed would result in impacts that would maintain, improve, or deteriorate land health conditions identified in the applicable Land Health Assessment (LHA).

**PLANT AND ANIMAL COMMUNITY (animal) STANDARD:** Since the entire proposed action would occur underground and there would be no surface disturbance, this standard does not apply.

**PLANT AND ANIMAL COMMUNITY (plant) STANDARD:** Since the entire proposed action would occur underground and there would be no surface disturbance, this standard does not apply.

**SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (plant) STANDARD:** There are no federally listed threatened or endangered or BLM sensitive species present in the vicinity of the proposed action. This standard does not apply.

**SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (animal) STANDARD:** There are no threatened or endangered animal species or habitats for such species within the proposed coal lease area. This area does provide breeding and nesting habitats for greater sage-grouse and Columbian sharp-tailed grouse. Both species are BLM special status species. Underground coal mines may result in subsidence which could alter surface habitat features slightly. Impacts from subsidence are not likely to have long term negative impacts to either Columbian sharp-tailed grouse or greater sage-grouse populations. This standard is currently being met and would continue to be met in the future.

**RIPARIAN SYSTEMS STANDARD:** There is no BLM surface within this project area. This standard does not apply. There is an unnamed drainage on private lands within the project area. It is not known if this drainage contains riparian habitats. Subsidence resulting from underground mining could alter water flow in this drainage.

**WATER QUALITY STANDARD:** The water quality standard for healthy public lands will not be affected by the proposed action which occurs on private surface.

**UPLAND SOILS STANDARD:** The upland soil standard for healthy public lands will not be affected by the proposed action which occurs on private surface.

**PERSONS/AGENCIES CONSULTED:**

Uintah and Ouray Tribal Council, Colorado Native American Commission, Colorado State Historic Preservation Office.

## FONSI

The Environmental Assessment (EA), analyzing the environmental effects of the proposed action, has been reviewed. With the implementation of the attached mitigation measures there is a finding of no significant impact on the human environment. Therefore, an Environmental Impact Statement (EIS) is not necessary to further analyze the environmental effects of the proposed action.

1. Beneficial, adverse, direct, indirect, and cumulative environmental impacts have been disclosed in the EA. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Little Snake Resource Area and adjacent land.
2. Public health and safety would not be adversely impacted. There are no known or anticipated concerns with project waste or hazardous materials.
3. There would be no adverse impacts to regional or local air quality, prime or unique farmlands, known paleontological resources on public land within the area, wetlands, floodplain, areas with unique characteristics, ecologically critical areas or designated Areas of Critical Environmental Concern.
4. There are no highly controversial effects on the environment.
5. There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature.
6. This alternative does not set a precedent for other actions that may be implemented in the future to meet the goals and objectives of adopted Federal, State or local natural resource related plans, policies or programs.
7. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.
8. Based on previous and ongoing cultural surveys, and through mitigation by avoidance, no adverse impacts to cultural resources were identified or anticipated. There are no known American Indian religious concerns or persons or groups who might be disproportionately and adversely affected as anticipated by the Environmental Justice Policy.
9. No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act were identified. If, at a future time, there could be the potential for adverse impacts, treatments would be modified or mitigated not to have an adverse effect or new analysis would be conducted.

10. This alternative is in compliance with relevant Federal, State, and local laws, regulations, and requirements for the protection of the environment.

I have reviewed the direct, indirect and cumulative effects of the proposed activities documented in this EA. I have also reviewed the project record for this analysis and the impacts of the proposed action and alternatives as disclosed in the Alternatives and Environmental Impacts sections of the EA. Based upon a review of the EA and the supporting documents, I have determined that the project is not a major federal action and will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. Because there would not be any significant impact, an environmental impact statement is not required.

**SIGNATURE OF AUTHORIZED OFFICIAL:**

**DATE SIGNED:**

FINAL PRELIMINARY

**DECISION AND RATIONALE:** I have reviewed this environmental assessment including the explanation and resolution of any potentially significant environmental impacts. I have determined that the proposed action with the mitigation measures described below will not have any significant impacts on the human environment and that an EIS is not required. I have determined that the proposed project is in conformance with the approved land use plan. It is my decision to implement the project with the mitigation measures identified below.

Mitigation Measures/Remarks:

It is my decision to implement the project with the mitigation measures identified below.

**MITIGATION MEASURES:**

1. The following standard cultural stipulations apply for this project:

The operator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the authorized officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places;
- The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and
- Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony.
- Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. No surface occupancy (NSO) within ¼ mile radius of a lek site.

**COMPLIANCE PLAN(S):**

Periodic compliance inspections will be performed over the life of this project to insure that all mitigation measures are being implemented as required. The BLM mining engineer will conduct Inspection and Enforcement examinations at least quarterly. Colorado Division of Reclamation, Mining and Safety conducts monthly surface inspections to ensure permit compliance.

**SIGNATURE OF PREPARER:**

**DATE SIGNED:**

**SIGNATURE OF ENVIRONMENTAL REVIEWER:**

**DATE SIGNED:**

**SIGNATURE OF AUTHORIZED OFFICIAL:**

**DATE SIGNED:**

PRELIMINARY

