

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

## ENVIRONMENTAL ASSESSMENT

**EA-NUMBER:** CO-100-2007-100 EA

**CASEFILE/PROJECT NUMBER/LEASE NUMBER:** N/A

**PROJECT NAME:** Sand Spring Coal Seam Fire Mitigation

**LEGAL DESCRIPTION:** T6N R93W, Sec. 25 NW ¼

**APPLICANT:** Colorado Division of Reclamation, Mining and Safety

**PLAN CONFORMANCE REVIEW:** The Proposed Action is subject to the following plan:

Name of Plans: Little Snake Resource Management Plan and Record of Decision (ROD) approved on April 26, 1989.

Remarks: The proposed project would be located within Management Unit 1 (Little Snake Resource Management Plan). The objectives of Management Unit 1 are to realize the potential for development of coal, oil and gas resources.

The Proposed Action has been reviewed for conformance with this plan (43 CFR 1610.5, BLM 1617.3). The Proposed Action is in conformance with the objectives for this management unit.

**NEED FOR PROPOSED ACTION:** To extinguish coal seam fires. Extinguishing the fires would aid in removing a source of ignition of the surrounding grasses as well as the continued degradation of the surface and subsurface caused by the combustion of the seam. Air quality would improve by eliminating the release of noxious gasses produced by the burning coal.

**PUBLIC SCOPING PROCESS:** The NEPA log is posted on the Little Snake Field Office web site. A copy of the Request for Bid will be posted in the Public Room of the Little Snake Field Office.

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:** The Colorado Division of Reclamation, Mining and Safety (CDRMS) was approached by BLM's AML division with funding to extinguish the Sand Springs coal seam fires. There are 5 areas of

proposed disturbance; the outcrop fire above the Sand Springs Gulch (Outcrop Work Area) and four vent areas to the east of the outcrop fire (Mesa Top Fire Vent Work Area). The equipment that would be used to perform the excavation and quenching would include: 1 each CAT D-4 Dozer or equivalent 80 FHP machine with ripper, 1 each Komatsu PC150 with thumb or equivalent 90 FHP tracked excavator, 1 each single rear axle 5 CY end dump truck, one pick-up truck and one tank for generating fire fighting foam.

### **Outcrop Work Area**

CDRMS would select a contractor from a competitive bidding process. At the Outcrop Work Area, the contractor would excavate the burning coal from a defined area at the coal outcrop, quenching these materials using a combination of fire fighting foam and water, allowing the materials to air-cool and then mixing the material with excavated overburden. Following excavation of the defined area, a seal composed of non-combustible earthen material would be compacted into place against the exposed coal seam. The remainder of the excavation would then be backfilled. Topsoil would be replaced and the area would be scarified and seeded with approved BLM seed mix listed below. The total area of disturbance would be 1.3 acres including the stockpile locations, excavation area and incidental areas. This area is flagged.

The construction sequence is as follows:

1. Topsoil would be removed from the excavation area including the footprint of the fire area and that of the work pad/ storage area located immediately down slope of the toe of the fire. It is estimated that four to six inches of soil would be removed from these areas. The soil may be dozed into a windrow to either side of each area.
2. Overburden excavation would proceed by removing the non-combustible overburden material from above the coal seam. Excavation would occur until the overburden is removed from within three vertical feet of the estimated top of the coal seam. Excavation would proceed in an easterly direction for a distance of approximately twenty feet from the toe of the burning crop. The excavated overburden materials may be place down slope of the excavation area in the work pad / storage area. Due to the ground surface rising in the direction of excavation, the back cut of the excavation must be sloped to prevent a slide into the work area. It is estimated that 1,800 cubic yards of overburden material would be excavated.
3. The three feet of remnant overburden would be excavated to expose the underlying coal. Excavation would begin at the outside margin of the overburden removal excavation, and proceed easterly until the toe of the cut slope is encountered. The overburden would be excavated so that no more than one hundred square feet of the underlying coal is exposed at any one time. The exposed coal would be excavated and cooled as needed prior to stripping a succeeding one hundred square feet of overburden material.
4. Coal excavation would proceed as follows: burning and non-burning coal materials would be excavated, segregated and cooled as necessary. Non-burning coal would be excavated and removed to the overburden storage area. Burning coal would be removed and cooled as it is encountered. Excavation of the coal would continue until the toe of the back cut is encountered for its entire length. Burning coal materials (ambient temperature of greater than 200° F) would be quenched using a water and fire fighting foam. When encountered, the coal would be excavated for the entire height of the coal

seam. The coal would be placed immediately behind the excavator where it would be cooled using the water / foam mixture.

5. Assume that 18,000 gallons of water would need to be imported to the site. The water and foam mixture would be applied to the burning coal as follows:
  - Create a large containment berm immediately down slope of the excavation area. The berm must be capable of containing run off water generated during the cooling operation. Alternatively, a large catch basin may be constructed, provided it is large enough to catch runoff water from the cooling operation
  - Excavate the burning coal and place near the westerly most portion of the excavation, but uphill of the containment structure.
  - Spray the water and foam mixture onto the burning coal, while stirring the material with an excavator
  - Spread material and allow to air cool as excavation continues.
  - The foam solution must be mixed with the water at the rate of one part product per 100 parts water (1%) solution. In order to create foam, the water and foam should be mixed in a large capacity tank. Compressed air must be injected into the out-put line below the mixing tank at about 25 pounds per square inch. The pressurized foam / water mixture must then pass through a baffle system in order to begin the foam generation process. Baffles can be constructed by welding expanded metal plates inside a metal box fitted with inlet and outlet fittings. Two inch corrugated canvas fire hose with a nozzle attached to the outlet end would be used to deliver the foam to the burning coal.
6. Following completion of excavation and quenching operations, all of the excavated material would be mixed and backfilled into the excavation so that the original contour of the area is restored. Stockpiled, non-combustible overburden materials would be placed and tightly compacted against the coal seam where exposed at the toe of the back cut as follows:
  - A minimum of five feet, measured horizontally from the toe of the cut slope;
  - From the base of the coal to at least five feet above the elevation of the top of the coal crop.
  - Backfill placement would occur by placing the non-combustible overburden materials in one foot horizontal lifts, each lift being compacted by a tracked machine.
7. Quenched coal and non-combustible overburden materials would be thoroughly mixed during backfill operations so that all coal materials are well diluted by non-combustible overburden materials. Backfilling of the mixed materials would occur by placing the materials against and over the initial backfill in one foot horizontal lifts, each lift being compacted by a tracked machine. The final lift would be roughened by dozer rippers or similar equipment parallel to contour. Stockpiled topsoil would be evenly distributed over the backfill surface and all other areas from which it was removed. Following placement, the topsoil would be roughened by dozer rippers or similar equipment parallel to contour. The area would then be re-vegetated as delineated below.

## **Mesa Top Fire Vent Surface Seal Operations**

1. A cap of inert earthen materials would be placed over the known vent areas located on the mesa south east of the outcrop fire. Field conditions may dictate changes to estimates of quantities, distances and areas.
2. The northerly vent is approximately 0.22 acres in size and characterized by a number of small venting fractures. Due to the variation of the topography, it is necessary to import earthen material to the site. A borrow area for cover material approximately 200 feet (center to center) to the east of the vent area would be used; this area is 0.35 acres.
3. The vent area would be buried by four feet of earthen material obtained from the borrow area. The cover material would be compacted in place every one foot vertically. Margins of the cap would be graded to blend with surrounding topography at a slope no steeper than 4H: 1V.
4. The borrow area would be excavated to an average depth of 2.5 feet. The north, west and south margin of the borrow area would be graded to blend with surrounding topography at a slope no steeper than 4H: 1V. The down slope, or easterly margin of the borrow area excavation would be graded so that positive sheet drainage is established following completion of excavation operations.
5. Following completion of earth moving operations, the ground surface at the cap and borrow area would be heavily scarified by using a track excavator to create numerous hummocks and depressions in a random pattern throughout the cut and fill areas. The areas would then be re-vegetated as described below.
6. The two central vents would be capped by earthen materials generated from the immediate vicinity of each vent. It is estimated that no more than 0.25 acres would be disturbed at each vent area.
7. At each vent, a sixty foot by sixty foot by four feet thick cap would be centered over each of the two central vents. Each cap would be constructed of earthen materials, and would be compacted in place every one foot vertically. Margins of the cap would be graded to blend with surrounding topography at a slope no steeper than 4H: 1V.
8. The earthen material may be obtained adjacent to the easterly margin of the foot print of each cap. The total area of disturbance at each borrow area should not exceed about 7,300 ft<sup>2</sup>. Each borrow area would be excavated to a relatively uniform depth. The margins of the borrow areas would be graded to blend with surrounding topography at a slope no steeper than 4H: 1V, however, one margin at each borrow area must be graded so that positive sheet drainage from the borrow area is established.
9. Following completion of earth moving operations the ground surface would be heavily scarified by using a track excavator to create numerous hummocks and depressions in a random pattern throughout the cut and fill areas. The areas would be re-vegetated as specified below.
10. The southerly vent area is comprised of a series of small vents located on and adjacent to a small subsidence depression and the associated westerly scarp. As with the other vent areas, an earthen cap would be constructed over the vents.
11. To construct the seal, the westerly scarp would be pushed in an easterly direction to fill the subsidence feature within which the vents occur. The area to be disturbed is somewhat linear, so earth moving operations would occur parallel with the trend of the scarp.

12. Earth moving would occur so that a minimum of four feet of earthen material is placed and compacted over the vents. The cap would extend easterly, until the subsidence feature is filled. The cap would be graded so that the easterly margin blends with the relatively undisturbed topography immediately adjacent to the fill. Approximately 0.5 acres would be disturbed by cut and fill operations.
13. Following completion of earth moving operations, the ground surface would be heavily scarified by using a track excavator to create numerous hummocks and depressions in a random pattern throughout the cut and fill areas. The areas would then be re-vegetated as specified below.

### **Site Access**

1. Access to the project area from the existing 2-track would be accomplished by tracking equipment cross-country along a pre-defined access route. The approximate location of the new route is shown on the attached maps.
2. A minimal amount of upgrade and construction would be accomplished to create the new access route.
3. In order to minimize environmental impacts from the new access route, it would be built to the following specifications:
  - The approximately 1,000 feet long route would be located on contour to the extent possible.
  - The route width would be no wider than necessary to safely allow passage of the widest piece of equipment required at the project area. A width of eight to ten feet should adequately accommodate the equipment.
  - Locally obtained rock may be placed in the ephemeral drainage crossings in order to create a level surface through the drainages.
  - The approximately 1,000 feet long access route would be reclaimed once vehicular access to the project area is no longer required. The route would be reclaimed by lightly ripping all compacted surfaces. Ripping would occur perpendicular to the fall of the topography. Rock placed in the ephemeral drainages, if any, would be removed from the drainage. The access route would be re-vegetated as specified below.

### **Revegetation**

1. All areas disturbed during the project would be re-vegetated by evenly distributing certified weed free straw mulch at two tons per acre.
2. Scarify the surface by using a track hoe bucket to gouge or pull the topsoil and mulch toward the machine in a manner so that no less than 12 inches of vertical relief is created. The gouges would be sufficiently close so that no more than 12 inches exist between the crest of one gouge and the crest of an adjacent gouge, in any direction.
3. Following surface roughening, the area would be re-vegetated by hand broadcasting of the following BLM approved seed mix:

Western wheatgrass, *Pascopyrum smithii*, Rosana, 2 lb. /ac.

Thickspike wheatgrass, *Elymus lanceolatus*, Critana, 3 lb. /ac.

Needle-and-thread, *Stipa comata*, no particular variety, 4 lb. /ac.

Squirreltail, *Sitanion hystrix*, Sand Hollow, 6 lb. /ac.  
Scarlet globemallow, *Spheralcea coccinea*, Scarlet, 2 lb. /ac.  
Blue flax, *Linum perenne*, Appar, 2 lb. /ac.

Rates are for broadcast seeding.

**NO ACTION ALTERNATIVE:** The No Action Alternative would result in continued burning of the coal seam. The potential for the coal seam fire resulting in a wild land fire would continue to exist.

### **AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES/MITIGATION MEASURES:**

#### **CRITICAL RESOURCES**

##### **AIR QUALITY**

Affected Environment: There are no special designation air sheds or non-attainment areas nearby that would be affected by the Proposed Action. Coal seam fires are a source of greenhouse gasses. Smoke emanating from these fires can contain poisonous and obnoxious smelling gasses such as oxides and dioxides of carbon, nitrogen and sulfur.

Environmental Consequences, Proposed Action: The Proposed Action would result in short term, local impacts to air quality resulting from diesel engine exhaust and dust from surface disturbing operations would result during the excavation and reclamation activities. The emissions from these activities consist of both gaseous and particulate fractions. Gaseous constituents from diesel engine exhaust include carbon dioxide, carbon monoxide, nitric oxide, nitric dioxide, oxides of sulfur and hydrocarbons. Fine particulates of soot from diesel exhaust and fugitive dust from soils would be localized to the project area. The health effects of these emissions are largely from long-term and occupational exposure in confined areas. The Proposed Action would not adversely affect the regional air quality. Extinguishing the coal seam fire would eliminate the pollutants that are being released and reduce the small increment of carbon, nitrogen and sulfur oxides and dioxides released from this source.

Environmental Consequences, No Action: Pollutants would continue to be released from the coal seam fire.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 8/15/07

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

Affected Environment: Not Present

Environmental Consequences: Not Applicable

Mitigative Measures: Not Applicable

Name of specialist and date: Rob Schmitzer, 8/20/07

## **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 in this area of Colorado, 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: The proposed project(s), Sand Springs Coal Seam Fire Abatement Project, has undergone a Class III cultural resource survey:

Morris, Robyn Watkins

2007. Class III Cultural Resource Survey of Sand Springs Coal Seam Fire Abatement Project, Moffat County, Colorado (10.46.07)

2008. An Addendum to A Class III Cultural Resource Inventory for the Sand Springs Coal Seam Fire Abatement Project, BLM-Little Snake Field Office, Moffat County, Colorado (BLM#10.30.08)

The survey identified no eligible to the National Register of Historic Places cultural resources. The proposed project may proceed as described in this EA with the following mitigative measures in place.

Environmental Consequences, No Action: A wild land fire could result from the coal seam fire, impacting cultural resources in the area.

Mitigative 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.

Name of specialist and date: Robyn Watkins Morris, 6/9/08

## **NATIVE AMERICAN RELIGIOUS CONCERNS**

A letter was sent to the Uinta and Ouray Tribal Council, Southern Ute Tribal Council, Ute Mountain Ute Tribal Council, and the Colorado Commission of Indian Affairs on January 21, 1999. The letter listed the projects that the BLM would notify them on and projects that would not require notification. No comments were received (Letter on file at the Little Snake Field Office). This project requires no additional notification.

Name of specialist and date: Robyn Watkins Morris, 6/9/08

## **ENVIRONMENTAL JUSTICE**

Affected Environment: The Proposed Action is located in an area devoid of year-round populations.

Environmental Consequences, both alternatives: The project area is relatively isolated from population centers, so no populations would be affected by physical or socioeconomic impacts from the project. The project would not directly affect the social, cultural, or economic well being and health of Native American, minority or low-income populations.

Mitigative Measures: None.

Name of specialist and date: Louise McMinn, 3/10/08

## **FLOOD PLAINS**

Affected Environment: Small active floodplain areas are present in Sand Spring Gulch. These areas are subjected to sedimentation annually. The floodplain area below the proposed coal seam extinguishing project is more defined due to the presence of an incised stream channel. Soils and water from seeps in the vicinity are saline and support saline tolerant upland and wetland plants.

Environmental Consequences, both alternatives: The proposed project will not occupy any of the floodplain area and no impacts are anticipated.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 5/30/08

## **INVASIVE, NONNATIVE SPECIES**

Affected Environment: The site of the proposed project currently has an abundance of cheatgrass that has established following the wildfire that ignited the coal seam and as a result of the soil disturbance caused by the coal seam fire. No other noxious weeds are known to occur on the site, but other invasive annual weeds are present. Hoary cress, tall whitetop, dalmation toadflax, Russian knapweed, Canada thistle and other biennial thistles are found in the vicinity of the project area. These noxious weeds could be introduced into the affected area by various vectors.

Environmental Consequences, Proposed Action: The surface disturbing activities and associated traffic involved with this project would create a favorable environment and provide a mode of transport for noxious weeds to become established. These weeds can be spread through a variety of means including by vehicular travel, construction equipment, wind, water, wildlife and livestock movement. The annual invasive weed species (yellow alyssum, blue mustard and other annual weeds) occur on adjacent rangelands and would occupy the disturbed areas; the bare soils and the lack of competition from a perennial plant community would allow these weed species to grow unchecked and can affect the establishment of seeded plant species. Establishment of perennial grasses and other seeded plants is expected to provide the necessary control of invasive annual weeds within 2 or 3 years. Additional seeding treatments of the disturbed areas may be required in subsequent years if initial seeding efforts have failed.

In the event that additional noxious weeds are established on this site they would be controlled by utilizing all principles of Integrated Pest Management, including successful reclamation of the project site and constructed access road. The BLM and Moffat County cooperate in weed control efforts needed on public lands resulting from BLM projects, including herbicide applications that would help to control the noxious weed species.

Environmental Consequences, No Action: The potential for a wild land fire would continue to exist. Fire ignition as a result of the coal fire and the presence of high levels of annual species would greatly increase the area (by hundreds or thousands of times) of the plant community that is dominated by such non-native species.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 5/30/08

## **MIGRATORY BIRDS**

Affected Environment: The proposed project area provides nesting habitat for Brewers sparrows and sage sparrows. Both species are listed on the USFWS's 2002 Birds of Conservation Concern List.

Environmental Consequences, Proposed Action: An active coal seam fire presents a constant threat to that nesting habitat by providing an ignition source for wild land fires. The Proposed Action could result in nest abandonment. Timing restrictions in place to protect nesting greater sage-grouse will help reduce the potential for this to occur. Eliminating the ignition source will help protect nesting habitat for these species. Chance of take is low.

Environmental Consequences, No Action: There would be no short term disturbance within the project area. However, the potential for a wild land fire would continue to exist. It is likely this would eventually result in a fire and the loss of many acres of habitat. Chance of take is low.

Mitigative Measures: None

Name of specialist and date: Timothy Novotny, 8/17/07

## **PRIME & UNIQUE FARMLANDS**

Affected Environment: There is no Prime and Unique Farmlands present in the vicinity of the Proposed Action.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 8/15/07

## **T&E SPECIES - SENSITIVE PLANTS**

Affected Environment: There are no BLM sensitive plant species within or in the vicinity of the Proposed Action.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

Name of specialist and date: Hunter Seim, 8/20/07

## **THREATENED AND ENDANGERED ANIMAL SPECIES**

Affected Environment: There are no threatened or endangered species or habitat for such species in or near the proposed project area. The project area does provide nesting and brood rearing habitat for greater sage-grouse, a BLM special status species.

Environmental Consequences, Proposed Action: The proposed project could result in a short term disturbance of greater sage-grouse. The level of disturbance to sage-grouse would depend on the time of year the activity takes place. Excavating the coal outcrop and extinguishing the burning material could disturb nesting sage grouse if it occurs during the nesting season (March 1 through June 30). This may lead to nest abandonment. If conducted outside of this time frame, it would not impact nesting grouse. This project could have a negative impact on sage grouse broods by making it more difficult to reach brood rearing habitat along Sand Spring Gulch. This could make sage-grouse chicks more vulnerable to predators. An active coal seam fire presents a continuous ignition source to surface fires. This presents a large threat to critical sage-grouse habitats in the area. If a wild land fire were to ignite from the coal seam fire, many acres of habitat could be lost for 15 to thirty years. This would have a severe negative impact to greater sage-grouse in the area. Extinguishing this fire would help protect many acres of sage-grouse habitat.

Environmental Consequences, No Action: An active coal seam fire presents a continuous ignition source to surface fires. This presents a large threat to critical sage-grouse habitats in the area. If a wild land fire were to ignite from the coal seam fire, many acres of habitat could be lost for 15 to thirty years. This would have a severe impact to greater sage-grouse in the area.

Mitigative Measures: CO-30. No surface disturbing activities between March 1 and June 30 in order to protect nesting greater sage-grouse.

Name of specialist and date: Timothy Novotny, 3/17/08

## **TERRESTRIAL WILDLIFE**

Affected Environment: The proposed project area provides year round habitat for mule deer, elk and pronghorn antelope including severe winter range for mule deer and elk. A variety of small mammals, reptiles and songbirds may also be found within the project area.

Environmental Consequences, Proposed Action: The project area provides productive wildlife habitat for many species of wildlife. An active coal seam fire presents a constant threat to that habitat by providing an ignition source for wild land fires. Digging up and extinguishing the burning coal will displace wildlife using the area. Eliminating the ignition source will help protect habitats for these species of wildlife.

Environmental Consequences, No Action: There would be no short term disturbance within the project area however; the potential for a wild land fire would continue to exist. It is likely this would eventually result in a fire and the loss of many acres of habitat.

Mitigative Measures: CO-09. No surface disturbing activities between December 1 and June 30 in order to protect wintering mule deer and elk.

Name of specialist and date: Timothy Novotny, 8/17/07

## **T&E SPECIES – PLANTS**

Affected Environment: There are no federally listed threatened or endangered plant species within or in the vicinity of the Proposed Action.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

Name of specialist and date: Hunter Seim, 8/20/07

## **WASTES, HAZARDOUS OR SOLID**

Affected Environment: If a release does occur, the environment affected would be dependent on the nature and volume of material released. If there are no releases, there would be no impact on the environment.

Environmental Consequences, both alternatives: Consequences shall be dependent on the volume and nature of the material released. In most every situation involving hazardous materials, there are ways to remediate the area that has been contaminated. Short-term consequences shall occur, but they can be remedied, and long-term impacts would be minimal.

Mitigative Measures: None

Name of specialist and date: Jennifer Maiolo, 9/28/07

## **WATER QUALITY – GROUND**

Affected Environment: Fresh water within the Wasatch Formation may occur. Potable water is highly unlikely in this area.

Environmental Consequences, Proposed Action: With the use of proper construction practices and with best management practices, no significant adverse impact to groundwater aquifers and quality is anticipated to result from the Proposed Action.

Environmental Consequences, No Action: Ground water quality would not be affected by a wild land fire, if one were to occur.

Mitigative Measures: None

Name of specialist and date: Jennifer Maiolo, 9/28/07

## **WATER QUALITY – SURFACE**

Affected Environment: The project site of the proposed operations is located on a westerly facing slope above Sand Spring Gulch. Sand Spring Gulch is an intermittent tributary to the Yampa River. The Yampa River needs to have water quality that supports Aquatic Life Cold 1, Recreation 1a, Water Supply and Agriculture. Sand Spring Gulch needs to have water quality that will support Aquatic Life Warm 2, Recreation 2 and Agriculture; it is designated as Use Protected.

Environmental Consequences, Proposed Action: The site of the coal seam fire is presently disturbed and does not have healthy upland soils or desirable vegetation cover. It is located on a moderately steep hill slope and is a source of sediments that can be transported to Sand Spring Gulch and the Yampa River. The attempt at extinguishing the coal seam fire if successful would limit the spread of the burning coal seam and reduce the potential of additional soil and vegetation disturbance caused by the heat from the fire. The initial surface disturbance required to extinguish the fire would result in additional soil erosion and sediment contributions in runoff water from the site in the short term. However, this would decrease within 2 to 3 years as the site becomes more stable with establishment of desirable perennial plants and improving soil conditions.

Environmental Consequences, No Action: The potential for the coal seam fire to ignite a wild land fire would still exist. Water quality would be impacted by the fire.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 5/31/08

### **WETLANDS/RIPARIAN ZONES**

Affected Environment: There are no wetlands or riparian zones within the proposed project area.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

Name of specialist and date: Timothy Novotny, 3/17/08

### **WILD & SCENIC RIVERS**

Affected Environment: Not Present

Environmental Consequences, both alternatives: Not Applicable

Mitigative Measures: Not Applicable

Name of specialist and date: Rob Schmitzer, 8/20/07

### **WSAs, WILDERNESS CHARACTERISTICS**

Affected Environment: Not Present

Environmental Consequences, both alternatives: Not Applicable

Mitigative Measures: Not Applicable

Name of specialist and date: Rob Schmitzer, 8/20/07

### **NON-CRITICAL ELEMENTS**

#### **PALEONTOLOGY**

Affected Environment: The geologic formation at the surface is the Cretaceous age Williams Fork Formation, a member of the Mesa Verde Group (Kw). Kw is a light-brown to white sandstone, gray shale, and contains major coal seams. Thickness is 1,100-2,000 ft. This has been classified a Class 4b formation for the potential for occurrence of scientifically significant fossils.

Environmental Consequences, Proposed Action: PYFC: *Class 4b* – These are areas underlain by units with high potential but have lowered risks of human-caused adverse

impacts and/or lowered risk of natural degradation due to tempering circumstances. The bedrock unit has high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic effects.
- Other characteristics are present that lower the vulnerability of both known and unidentified fossil resources.

The Proposed Action could constitute a beneficial impact to paleontological resources by increasing the chances for discovery of scientifically significant fossils.

Environmental Consequences, No Action: A wild land fire could result from the coal seam fire, impacting paleontological resources in the area.

Mitigative Measures: Unusual occurrences of plant or invertebrate fossils should be recorded, and representative examples may be collected if appropriate. Additional mitigation measures may be appropriate in some cases for these types of localities. Concentrations of common plant or invertebrate fossils that may be suitable for public hobby collection areas should also be noted and reported to the Field Office paleontology program coordinator or paleontology program lead.

During operations, if any vertebrate paleontological resources are discovered, in accordance with Section 6 of Form 3100-11 and 43 CFR 3162.1, all operations affecting such sites shall be immediately suspended, and all discoveries shall be left intact until authorized to proceed by the Authorized Officer. The appropriate Authorized Officer of the Little Snake BLM office, Craig Colorado, shall be notified within 48 hrs of the discovery, and a decision as to the preferred alternative/course of action will be rendered.

Reference:

Hanson, D., Armstrong, H., Hester, P., and Foss, S., – Regional Paleontologists; Titus, Alan, – GSENM Paleontologist; and McClellan, C., – Chief, Div. of Cultural and Paleontological Resources and Tribal Consultation, Washington, DC, 2006. Draft: Survey & Mitigation Protocols for Addressing Potential Impacts to Paleontological Resources

Name of specialist and date: Jennifer Maiolo, 10/1/07

## **RANGE ALLOTMENT(S)/RANGE IMPROVEMENTS**

Affected Environment: The Proposed Action occurs within the Horse Gulch grazing allotment #04065. This lease authorizes grazing use by cattle between April 15<sup>th</sup> and October 15<sup>th</sup>. A rotational grazing system is utilized within this allotment.

Environmental Consequences, Proposed Action: The Proposed Action would not affect the grazing use in this allotment. Basic coordination with and awareness provided to the current lessee would be beneficial during the grazing period.

Environmental Consequences, No Action: If a wild land fire were to occur, livestock forage would be lost and range improvements in the area could be damaged.

Mitigative Measures: None

Name of specialist and date: Christina Rhyne, 3/11/08

## **SOILS**

Affected Environment: The primary soils at the project site are the Kemmerer-Moyerson complex, 20 to 40 percent slopes and the Kemmerer-Yamo complex, 5 to 30 percent slopes. The access road coming off the ridge to the south and southwest of the site is on soils mapped as the Forelle loam, 3 to 12 percent slopes. In the first soil complex the Kemmerer soil comprises 45 percent and the Moyerson soil comprises 40 percent of the mapping unit; Pinelli soils and other deep soils comprise about 15 percent. The second soil complex is typically 60 percent Kemmerer and similar soils, 20 percent Yamo and similar soils, 8 percent Moyerson and similar soils, 7 percent Pinelli and similar soils and 5 percent Forelle and similar soils.

The parent material for the Kemmerer and Moyerson soils is residuum derived from shale and for the Yamo soils it is residuum derived from sandstone and in loess. The Kemmerer and Moyerson soils have silty clay loam surface horizons with a typical depth of 3-inches and 1-inch, respectively and silty clay to clay subsoils to an additional depth of 17 and 22-inches; a 4-inch depth of weathered shale bedrock is present at the bottom of each of the soil profiles overlying shale bedrock at depths of 21 and 26-inches, respectively. The Kemmerer and Moyerson soils are rated as a poor source for topsoil and reclamation materials mainly due to the soil textures and depth of the soil profiles. The Kemmerer and Moyerson soils also have low to very low permeability and very high runoff rates. Conversely the deeper soils that should be present within the project area have much more conducive soil properties for project related activities that involve borrow areas for capping and topsoil or reclamation material sources.

Environmental Consequences, Proposed Action: The primary soils at the project site are comprised of the Kemmerer and Moyerson soils. These soils have soil textures and soil profile depths that are not conducive for revegetation. However deeper soils such as the

Yamo, Pinelli and Forelle soils occur as pockets of deeper soils on approximately 15 to 30 percent of the project area. These areas of deep soils need to be identified. If soils adjacent to the central and southern vents are the moderately shallow Kemmerer and Moyerson soils they should not be disturbed. Borrowing soil materials from these soil types will leave materials in place that are less capable of storing soil moisture and supporting desirable plant species. Capping materials for these vent areas will need to be obtained from deep soil profile areas that characteristically occur within the mapping units. All available topsoil will need to be salvaged. Most of the suitable soil types (Yamo, Pinelli and Forelle) have a surface horizon of 5-inches identified, but if deeper dark surface horizons are present they should be salvaged.

Environmental Consequences, No Action: The potential for the coal seam fire to ignite a wild land fire would still exist. Soils would be severely impacted by the fire

Mitigative Measures: Detailed soil mapping of the site needs to occur prior to commencing operations. This mapping only needs to identify where pockets of deep soils exist so that all available topsoil and additional suitable reclamation materials can be salvaged.

Name of specialist and date: Ole Olsen, 5/31/08

## UPLAND VEGETATION

Affected Environment: The Proposed Action is located in a sagebrush-grass plant community that has been largely invaded by weeds. Dominant and/or potential native plants include Wyoming big sagebrush (*Artemisia tridentata wyomingensis*), basin big sagebrush (*A. tridentata tridentata*), winterfat (*Krascheninnikovia lanata*), Oregon grape (*Mahonia aquifolium*), lupine (*Lupinus* spp.), western wheatgrass (*Agropyron smithii*), needle-and-thread (*Stipa comata*), squirreltail (*Sitanion hystrix*), Indian ricegrass (*Oryzopsis hymenoides*), and Sandberg bluegrass (*Poa sandbergii*). Non-native species that are abundant throughout the site include cheatgrass (*Bromus tectorum*) and yellow alyssum (*Alyssum alyssoides*).

Environmental Consequences, Proposed Action: The Proposed Action would completely remove all vegetation, native and non-native, within the approximately one and a half acre area immediately surrounding the coal fire. All reclamation as proposed, including recontouring, topsoil replacement, and reseeding would result in improvement to the overall condition of the plant community at the site. This site is currently dominated by non-native, annual species and any intensive reclamation practices, as long as they are properly implemented and followed-up on, would improve the overall health (vigor, diversity, and composition) of the plant community.

Environmental Consequences, No Action: The No Action alternative would not only fail to result in any improvements to the plant community as a result of intensive reclamation practices, but would likely result in wildfire ignition and a resulting abnormal fire cycle due to the high density of non-native annual species which provide high amounts of easily

ignitable fuels, thereby perpetuating the non-native component of the plant community and possibly resulting in a complete type conversion from native perennials to non-native annual species. Fire ignition as a result of the coal fire and the presence of high levels of annual species would greatly increase the area (by hundreds or thousands of times) of the plant community that is dominated by such non-native species.

Mitigative Measures: None

Name of specialist and date: Hunter Seim, 8/22/07

**WILDLIFE, AQUATIC**

Affected Environment: There is no aquatic wildlife habitat in the project area.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

Name of specialist and date: Timothy Novotny, 8/17/07

**OTHER NON-CRITICAL ELEMENTS:** For the following elements, those brought forward for analysis will be formatted as shown above.

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Fluid Minerals		JAM 8/17/07	
Forest Management	JAM 8/17/08		
Hydrology/Ground		JAM 8/17/07	
Hydrology/Surface			OO 5/31/08
Paleontology			JAM 10/1/07
Range Management	HS8/22/07		
Realty Authorizations	LM 3/10/08		
Recreation/Travel Mgmt		RS 8/20/07	
Socio-Economics		LM 03/10/08	
Solid Minerals		JAM 8/16/07	
Visual Resources		RS 8/20/07	
Wild Horse & Burro Mgmt	JAM 8/16/07		

**CUMULATIVE IMPACTS SUMMARY:** A fire has already been successfully fought in this area. Future fires may occur. The area is isolated and not easily accessible. The area gets very

little use by public visitors as there is limited public access to the site. Wildlife grazing is the principal use; the area is very small and the Proposed Action would not impact the grazing.

**STANDARDS:**

**PLANT AND ANIMAL COMMUNITY (plant) STANDARD:** The site of the Proposed Action is currently not meeting this standard. The site is dominated by cheatgrass, alyssum, mustards, and other non-native plants. The Proposed Action would alleviate a likely source of ignition which would result in a disrupted fire cycle and, potentially, a complete type conversion to non-native annual plants. Further, proper reclamation techniques, including reseeding with native species would greatly improve the site over what exist there presently. The Proposed Action would meet this standard.

The No Action alternative would not meet this standard, as no corrective actions would be taken to improve the current plant community or alleviate the potential for a type-converting wildfire.

Name of specialist and date: Hunter Seim, 8/22/07

**PLANT AND ANIMAL COMMUNITY (animal) STANDARD:** The proposed project area provides productive wildlife habitats for a variety of species. The burning coal seam threatens this habitat by providing a constant ignition source for wild land fires. The Proposed Action would help prevent wild fires and protect habitat. This standard is currently being met and would continue to be met in the future.

Name of specialist and date: Timothy Novotny, 8/17/07

**SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (animal) STANDARD:** There are no threatened or endangered species or habitat for such species present within the project area. The project area does provide nesting and brood rearing habitat for greater sage-grouse, a BLM special status species. The burning coal seam threatens this habitat by providing a constant ignition source for wild land fires. The Proposed Action would help prevent wild fires and protect greater sage-grouse habitat.

Name of specialist and date: Timothy Novotny, 8/17/07

**RIPARIAN SYSTEMS STANDARD:** There are no wetlands or riparian systems present in the project area. This standard does not apply.

Name of specialist and date: Timothy Novotny, 8/17/07

**WATER QUALITY STANDARD:** The water quality standard for healthy rangelands would be met with implementation of either the Proposed Action or No Action alternatives. Runoff from snowmelt and summer storms would drain from the project area into stream segments that are presently supporting classified uses. Surface runoff and soil erosion from this site is expected to

be reduced with implementation of the Proposed Action followed by successful revegetation. No stream segments are listed as impaired.

Name of specialist and date: Ole Olsen, 5/31/08

**UPLAND SOILS STANDARD:** The upland soil standard is presently not met in the area of the proposed project. This is due to the wildfire that occurred in the past and subsequent ignition of the coal seam that elevated soil temperatures beyond the threshold of plant growth in the short term and which caused organic matter to be consumed. The Proposed Action if successful in extinguishing the coal seam fire should accelerate the recovery of the site if judicious uses of the soil materials available on site are incorporated into the action. Additional examination of the site to identify deep soils for borrow areas and limiting disturbance on the shallow to moderately deep soils would enhance the overall reclamation of the project area.

Name of specialist and date: Ole Olsen, 5/31/08

**PERSONS/AGENCIES CONSULTED:** Uintah and Ouray Tribal Council, Colorado Native American Commission, Colorado State Historic Preservation Office.

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)**  
**EA CO-100-2007-100EA**

Based on the analysis of potential environmental impacts contained in the EA and all other available information, I have determined that the proposal and the alternatives analyzed do not constitute a major Federal action that would adversely impact the quality of the human environment. Therefore, an EIS is unnecessary and will not be prepared. This determination is based on the following factors:

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.

**DECISION AND RATIONALE:**

I have determined that extinguishing this coal seam fire is in conformance with the approved land use plan. The project will be monitored by regular inspections and protected by a bond held by CDRMS.

**COMPLIANCE PLAN(S):**

**Compliance Schedule**

Compliance will be conducted during the construction phase to insure that all terms and conditions specified in the contract are followed.

**Monitoring Plan**

The project will be monitored during the excavation, quenching and revegetation until final completion is granted; monitoring will help determine the effectiveness of mitigation and document the need for additional mitigative measures.

**Assignment of Responsibility**

Responsibility for implementation of monitoring plan will be assigned to the Solid Mineral staff in the Little Snake Field Office. Steve Renner of CDRMS will be on site for contract compliance. Primary inspectors for the BLM will be the Mining Engineer, but the Resource Specialist, Realty Specialist, and Legal Instruments Examiner will also be involved.

**SIGNATURE OF PREPARER:**

**DATE SIGNED:**

**SIGNATURE OF ENVIRONMENTAL REVIEWER:**

**DATE SIGNED:**

**SIGNATURE OF AUTHORIZED OFFICIAL:**

**DATE SIGNED:**