BLM

United States Department of the Interior
Bureau of Land Management

Environmental Assessment
for the
Blue Mountain Energy Coal Lease Application COC74813

White River Field Office
220 E Market St
Meeker, CO 81641

DOI-BLM-CO-110-2012-0023-EA

February 2013

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U.S. Department of the Interior
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White River Field Office
220 E Market St
Meeker, CO 81641

ENVIRONMENTAL ASSESSMENT

Identifying Information

NUMBER: DOI-BLM-CO-110-2012-0023-EA

CASEFILE/PROJECT NUMBER: COC74813

PROJECT NAME: Blue Mountain Energy Coal Lease Application COC74813

LEGAL DESCRIPTION: Township 3 North, Range 101 West, Sixth Principal Meridian
Section 17; SWSW, S½SESW;
Section 18; Lots 3-4, SESW, S½NESW, S½SE, and S½N½SE;
Section 19; Lot1, NE, NENW, N½SENW, N½NWSE;
Section 20; NE, N½NWNW, N½NENW;
Section 21; W½NE, SENE, NW, N½SE;
Section 22; S½NW, N½SW, SESW, SE;
Section 23; S½SE, S½SW;
Section 26; N½, SW, N½SE, SWSE;
Section 27; E½, E½W½, SWSW;
Section 34: N½NE, NW;
Section 35; NWNE, N½NW.
(approximately 3,154.76 acres)

APPLICANT: Blue Mountain Energy Inc.

BACKGROUND/INTRODUCTION:

Blue Mountain Energy Inc., (BME) submitted a Lease-by-Application (LBA) for approximately 3,154.76 acres of federal coal reserves located in Rio Blanco (2,838.35 acres) and Moffat (316.41 acres) Counties, Colorado (see Figures 1 and 2). This LBA would involve leasing federal coal reserves beneath federal lands adjacent to BME's Deserado Mine.

Figure 1: Aerial Map

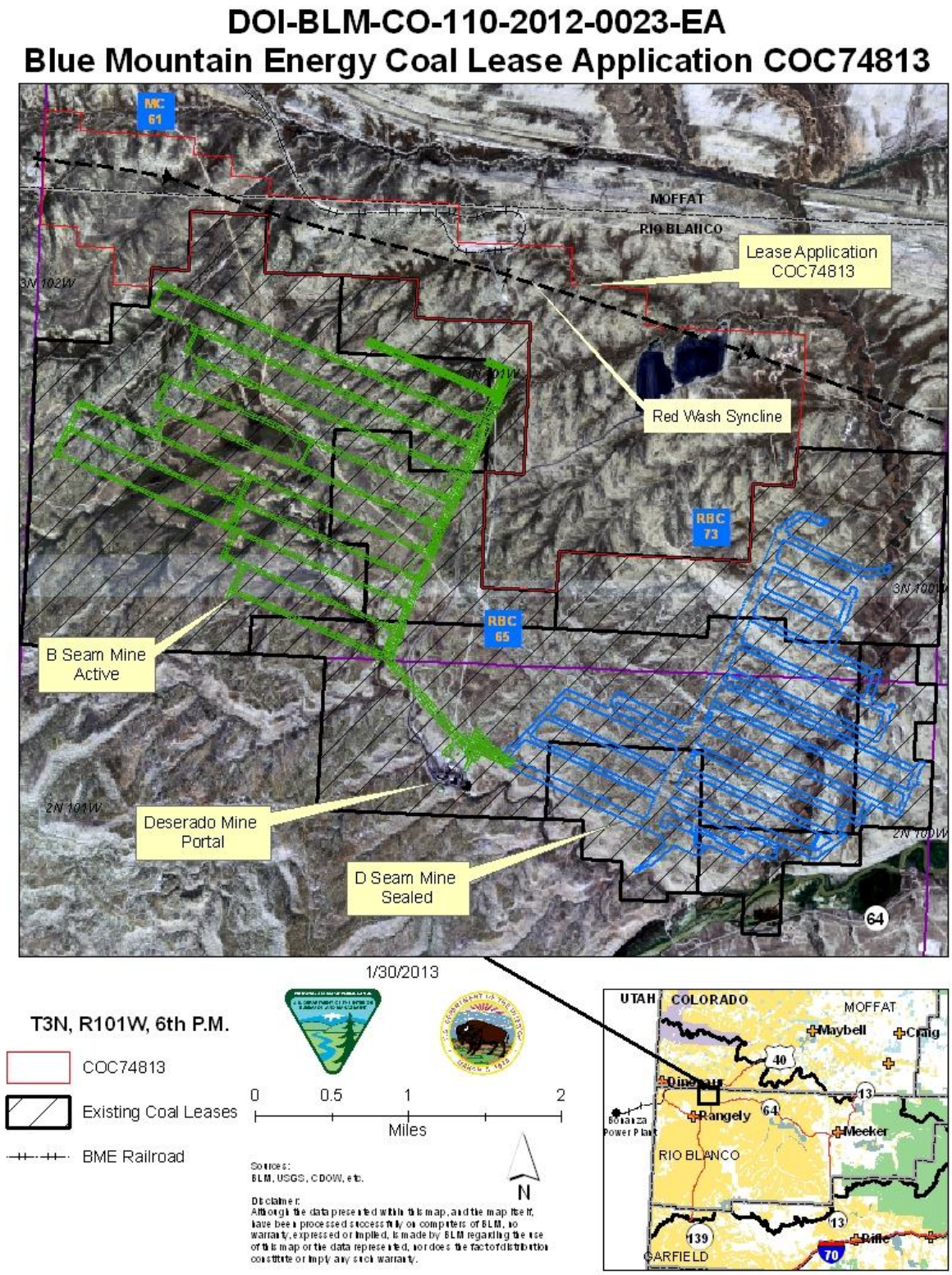
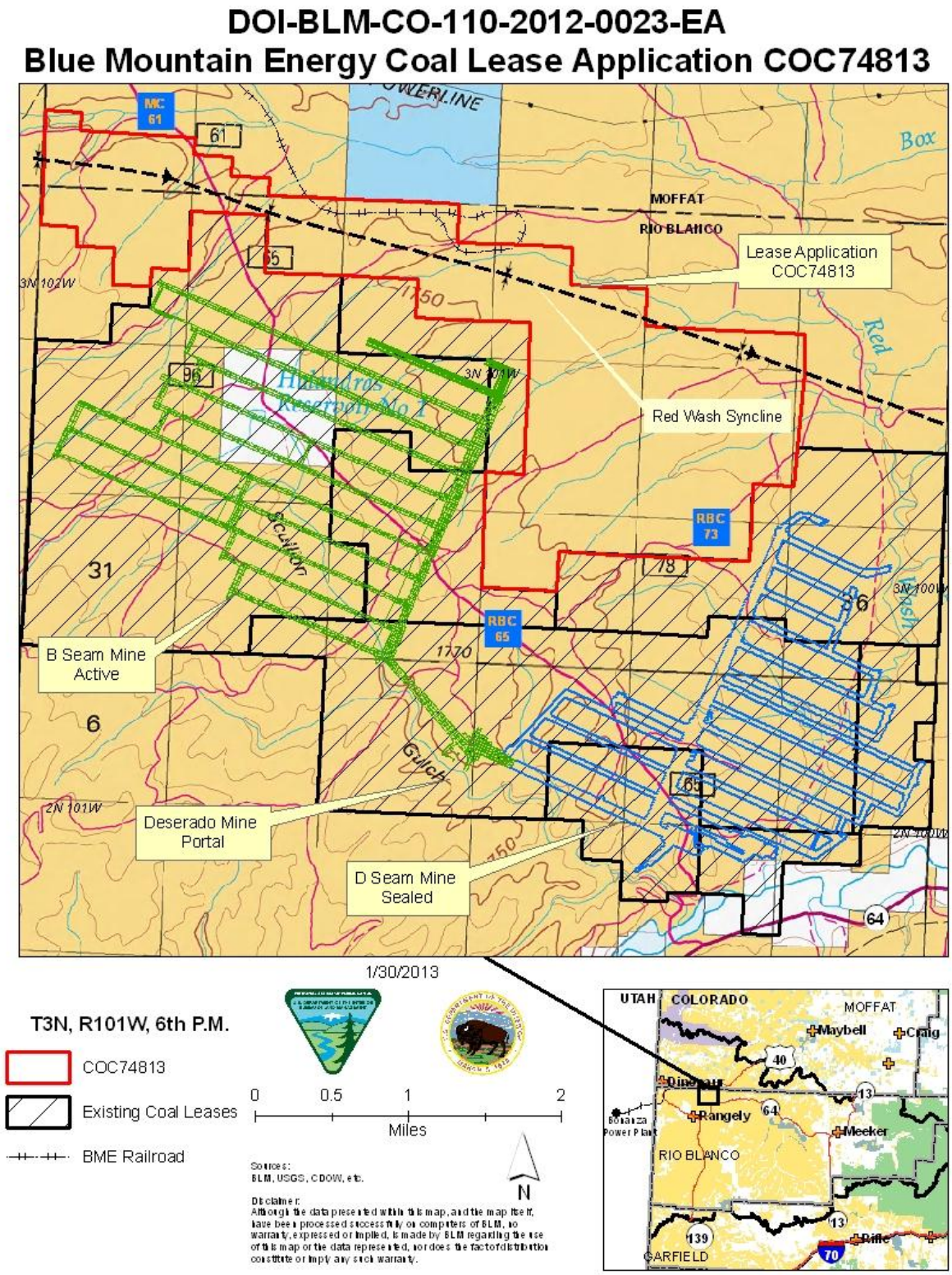


Figure 2: Topographic Map with Surface Ownership



Coal is a federal asset, and the Bureau of Land Management (BLM) is required by law to consider leasing the federally owned minerals and ensure the maximum economic recovery of

Federal coal resources. (See Mineral Leasing Act (MLA) of 1920, as amended by the Federal Coal Leasing Amendments Act (FCLAA) of 1976; Federal Land Policy and Management Act (FLPMA) of 1976; 43 C.F.R § 3400, et seq.). The decision to lease these lands is a necessary prerequisite for mining, but it does not authorize mining. If the BLM decides to lease the Federal coal described in the LBA submitted by BME, there will be a competitive sealed-bid lease sale for the tract. The successful lessee must then submit a plan, or modification to an existing plan, for mining and reclamation to the Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSM), for review and approval. Once a mining plan has been submitted, OSM will review the developments proposed in the mining plan.

BME is the holder of seven federal coal leases and operates the underground longwall Deserado Mine that supplies coal to the Bonanza Power Plant near Bonanza, Utah. The mine is located in Rio Blanco County, Colorado approximately seven miles northeast of Rangely, Colorado. The Deserado Mine was permitted in 1981 and has been producing coal since 1983. As of January 2012, the mine has shipped more than 44 million tons of clean coal (coal in which the impurities inherent within the coal seam and introduced during mining are removed) to the Bonanza Power Plant. In 1985 the leases were formed into the Deserado Mine Logical Mining Unit (LMU). A high capacity longwall was installed in December 1986. The Deserado Mine is considered a captive mine since all coal produced is sold and shipped to its sole customer, the Bonanza Power Plant. The coal is transported 37 miles from the mine to the power plant via electric train. There are two mineable coal seams in the currently leased mine area, the D-Seam and the B-Seam. The upper seam is the D-Seam with an inter-burden that varies from 5 feet to 70 feet between the D and B-Seams. Recoverable D-Seam coal resources are only in the eastern and southeastern portion of the leased mine area and recoverable B-Seam coal resources are in the western and northern leased mine area. Production of coal from the D-Seam ceased in November 1999 and the longwall moved into the B-Seam. Mining of the B-Seam continues and is progressing towards the northwest. Depositional geology of the D and B-Seams are complex with multiple partings and varying mineable coal split thickness. Partings in the coal seam are horizontal lenses of sandstone, clay, or shale with varying coal content that vertically divide the seam. These partings are typically mined as part of the coal seam depending on the thickness and coal content of the partings. Mined coal is processed through a coal prep plant where any rock or low coal content material is removed resulting in a clean coal product.

Subsidence (i.e. the land surface lowered as a result of mining) occurs above underground mining operations. The Deserado Mine's maximum predicted subsidence above the longwall panels in the B-Seam is seven feet. Subsidence monitoring above a previously mined longwall panel in the D-Seam showed subsidence to be less than predicted with a limit effect of subsidence 200 feet outside the longwall mine panel boundaries. Mining of longwall panels has already occurred beneath approximately three miles of Rio Blanco County Road 65 and portions of Rio Blanco County Road 96. Subsidence from longwall mining has not interfered with the use of the roads.

The Deserado Mine currently employs approximately 164 people and produces approximately 2.2 to 2.5 million raw tons per year and delivers on an average about 2 million clean tons annually to the Bonanza Power Plant. Blue Mountain Energy holds exploration licenses, COC72922 and COC74817, which overlie the LBA. Exploration drilling conducted in the fall of

2010 and fall of 2011 identified additional acres of mineable coal resources and the LBA was modified to include this area. Based on current mine plans, if BME is the successful bidder on this LBA, mine longwall development entries into the LBA could occur in 2013. The B-Seam and D-Seam leased coal resources have been mined out to the south of the lease tract near the coal outcrop. Access to the coal reserves would be best attained from the existing Deserado Mine workings. These coal seams have no outcrop within the LBA and it is unlikely a bidder other than BME would consider the recovery of the coal resource economical due to the capital cost of required infrastructure for access and the limited amount of coal resources.

The LBA is located in a Known Recoverable Coal Resource Area on which the unsuitability criteria were applied in the 1981 Coal Amendment to the White River Management Framework Plan (MFP). Coal unsuitability criteria were established by the Surface Mining Control and Reclamation Act (SMCRA) of 1977 and criteria cited in the act is expanded in 43 CFR 3461. Coal unsuitability criteria are applied to lands having coal development potential. These criteria evaluate the lands to determine if they are suitable for further consideration for mining.

Underground mining of coal deposits is exempt from the criteria, where there would be no surface coal mining operations as stated at 43 CFR 3461.1.1(a). Surface mining operations include surface operations and surface impacts incident to an underground mine as defined in 43 CFR 3400.0-5(mm). In addition, where underground mining would include surface operations and surface impacts on federal lands to which a criterion applies, the lands shall be assessed as unsuitable unless an exception or exemption applies (43 CFR 3461.1(b)). Each criterion is subject to exceptions and/or exemptions as prescribed in the regulations.

Application of the unsuitability criteria in the 1981 Coal Amendment resulted in the determination that the area encumbered by the LBA is suitable for subsurface coal development. Decisions in the 1981 Coal Amendment, pertaining to management of coal resources, were carried forward into the 1997 White River Record of Decision and Approved Resource Management Plan (1997 White River ROD/RMP) which also specifies the unsuitability criteria would be reapplied at the time a coal lease application is received (See Appendix A).

PURPOSE & NEED FOR THE ACTION

Purpose: The BLM purpose is to decide whether to hold a competitive sealed-bid lease sale for the tract as applied for, hold a competitive sealed-bid lease sale for a modified tract, or reject the current application and not offer the tract for sale at this time.

Need: The BLM need is to respond to an application to lease coal in accordance with the National Environmental Policy Act (NEPA), the MLA of 1920, as amended by FCLAA (1976), and FLPMA (1976).

SCOPING, PUBLIC INVOLVEMENT, AND ISSUES

Scoping: Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 12/06/2011. External scoping was conducted by posting

information about this project on the WRFO's on-line NEPA register web site http://www.blm.gov/co/st/en/fo/wrfo/index.html on 12/09/2011, along with a press release on the same date asking for public comments on the proposed LBA. Three commenters responded to the scoping announcement: Wild Earth Guardians, Colorado Parks and Wildlife (CPW), and one individual.

On September 5, 2012, the BLM issued a press release announcing the availability of the preliminary Environmental Assessment (EA) for a 30 day public comment period ending October 5, 2012. Notification of a public hearing published in the Federal Register (Vol. 77, No. 203 / Friday, October 19, 2012, 64348) and in the Craig Daily Press Newspaper extended the date for written comments until November 20, 2012. The public hearing was held on November 28, 2012, to receive comments on the EA, maximum economic recovery, determination of Fair Market Value, and the method of mining. Eighteen members of the public attended the hearing and seven public comments were received. An additional 47 commenters responded by email or by mail prior to the close of the comment period. The comments and BLM's responses are tabulated in Appendix B of the EA.

Issues: The issues identified by the public focused on mine infrastructure, wildlife habitat, soils, water quality, air quality, and economic importance. Wildlife concerns include: big game winter ranges, white-tailed prairie dogs, burrowing owls, greater sage-grouse, and threatened and endangered species in the White River. Mining infrastructure included gob degas, nitrogen, and exploration holes, vent shafts, subsidence, existing electric railroad, There were also concerns related to the power plant on air quality, climate change, greenhouse gas (GHG) emissions, water quality, soils, and threatened and endangered species in the White and Green Rivers. One commenter cited the efficient use of existing facilities and the benefits to state, local, and federal entities.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action:
BME has submitted a LBA for issuance of a federal coal lease identifying approximately 3,154.76 acres of previously un-leased federal coal. The LBA is located at the northern border of the current Deserado Mine coal lease boundaries (see Figures 1 and 2). The LBA configuration is governed by the existing leases and geology of the area. The southern, western, and eastern tract boundaries adjoin existing coal leases of the Deserado Mine. In the northwest and northeast, the tract may be bounded by where the coal seam thins and rock parting thickness increases greatly. The northern LBA boundary roughly coincides with the structural mining limit of the B-Seam deposit, where the coal seam and encompassing rocks dip upward steeply along the northern flank of the Red Wash Syncline. Coal seam splitting and thinning may also occur in this area. Due to the variability of coal seam parting, splits and thickness, the exact length and mining extent of the eastern longwall panels may vary. Additional future exploration drilling would better delineate the coal and parting thicknesses in this area and define the lengths of the eastern longwall panels. Development of the tract would be dictated by the approved mine plan and, if BME is the successful bidder on the LBA, development activities, including water usage, would be expected to continue at the same rate as the adjacent leases.

Portions of Rio Blanco County Road 73 and 65 (which becomes Moffat County Road 61), the Deserado Mine overland conveyor, coal storage, train load-out, rail line, haul road, and refuse disposal area would be within the LBA and are authorized through federal land use authorization rights of way (ROW).

Additional new surface disturbances for facilities would be needed to support mining within the LBA. Such sites would typically be related to the surface drilling of holes for exploration, gob degas, nitrogen injection, and mine ventilation shafts. Each exploration, nitrogen, and degas hole location site would be sized to allow sufficient space for all necessary drilling equipment and is typically less than 100 feet by 150 feet (0.34 acres) in size and locations for air ventilation shafts are 150 feet by 150 feet (0.52 acres). Road width is typically 12 feet for exploration, degas, and nitrogen holes and 15 feet for ventilation shafts. BME would utilize existing roads and two tracks as much as practical with new access roads averaging less than 1,000 feet (0.34 acres for ventilation shafts and 0.28 acres for exploration, nitrogen, and gob degas holes). BME's mine ventilation plan approved by the Mine Safety and Health Administration (MSHA) requires a maximum 3,000 foot spacing of degas and nitrogen injection wells. Based on projected coal development within the proposed lease, 30 degas holes, 30 nitrogen injection holes, 15 exploration holes, and 10 ventilation shafts would be necessary for coal recovery. This could involve up to a total of approximately 56 acres of new disturbance (9 acres for ventilation shafts, 10 acres for exploration holes, and 37 acres for degas and nitrogen) on the proposed lease. Construction of approximately 4 to 15 of a combination of support facilities could occur with an annual disturbance of approximately 2 to 9 acres. Drilling and construction activity is typically scheduled during fall and lasts two to three days for each exploration, gob degas and nitrogen hole. Four to six weeks of construction activities could be needed for the construction of ventilation shafts. All site disturbances including new access roads developed for facilities would be reclaimed when no longer required for mining activities. Degas, ventilation shafts, and nitrogen holes typically remain operational for one to three years and at the end of their operational life are reclaimed. Exploration holes are plugged and reclaimed the same year they are drilled.

Based on current projected coal demands for the Bonanza Power Plant, and if BME is the successful bidder on this LBA, development entries would proceed into the LBA in 2013 with longwall mining commencing in late 2013. Mining operations would continue at the current production rate of approximately 2 million tons of deliverable coal per year. The Deserado Mine currently has approximately eight to nine years of recoverable coal reserves in existing leases. Logical progression in the mining sequence would require the development and mining from existing leases into and through the LBA (see Figures 1and 2). This is due to the geologic restrictions that determine the orientation of longwall panels in relation to the configuration of LBA and coal lease boundaries. The LBA has an estimated 21.3 ton of deliverable coal and if BME is the successful bidder the coal reserves from the LBA would be developed through 2032.

If BME is the successful bidder on this LBA, development of the coal resources in the LBA will likely occur in a similar manner as the current Federal coal resource recovery in the adjacent leases under the provision of the approved Deserado Mine Mining Permit (C-1981-018).

No Action Alternative
There would be no competitive sealed bid for this LBA and federal coal lease COC74813 would not be issued and the recoverable coal resources in the LBA would be bypassed. Due to the mine geology and longwall panel orientation, the use of longwall mining would be limited on adjacent leases near lease boundaries and the maximum economic recovery of coal resources on the adjacent leases would not occur.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

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 Land Use Plan).
- 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 coal mine methane (CMM) was considered, but eliminated from detailed analysis because it is technically or economically infeasible and its implementation is remote or speculative. The obstacles to CMM capture include technical challenges, power prices, pipeline capacity, and quality constraints.

Methane released from the LBA and from the mine as a result of mining operations would be vented through the mine ventilation system and gob degas wells. Practical constraints on commercial development of methane or natural gas in this area include the depth of the resource, the occurrence of the resource, resource quality and quantity, and limitations relative to effective resource development and production and the mine life. With respect to resource quality and quantity, methane liberation and resulting concentrations from the B-Seam coal are low, and methane released is further diluted by mine ventilation air, with the result that the concentration of methane discharged from mining operations as a component of ventilation exhaust air is below the limits of current available technologies to collect and concentrate the methane resource for sale and use. Deserado's 2011 gob degas operations consisted of operating two gob degas holes 7 out of 365 days.

Technologies for Ventilation Air Methane (VAM) Capture are still in the developmental stage and cost information is still limited (EPA CMOP, 2011). Therefore, the implementation of methane capture is unlikely, given past and current practice and available technology.

Methane Flaring
The alternative to flare the methane was also considered and eliminated from detailed analysis. The BLM determined it to be technically or economically infeasible and its implementation is

remote and speculative. About 29 U.S. coal mining operations use vertical methane drainage wells to vent gas from the mines. In all cases, gas vented from these wells is discharged directly into the atmosphere. Under ideal conditions, operators would collect methane gas directly at the wellhead for sale or on-site use. Because of variable gas quality and quantity, difficulties in coordinating commercial gas recovery with underground mine degasification requirements, and the economics of commercializing methane mixed with air, coal mine operators commonly vent methane to the atmosphere and do not capture the gas.

In these cases, safety and environmental objectives could be satisfied by carefully flaring emitted gas. Gas flaring is a standard safety practice in some industries. For example, methane and other associated gases are routinely flared during processing and production of oil and gas, and are continuously flared from landfill collection systems. Incorporating a controlled flare system could minimize the potential of an unconfined conflagration occurring on the surface at the methane drainage discharge location(s) and would potentially reduce greenhouse gas effects through combustion of the associated hydrocarbons.

The Environmental Protection Agency (EPA) is currently sponsoring research and outreach efforts to coal mine operators to encourage coalbed and coal mine methane capture or flaring (refer to www.epa.gov/coalbed). The methodology for flaring methane emissions from underground coal mines is emerging, but remains technologically speculative at this time. The hazard that flaring could create relative to the potential for an underground ignition has not been clearly dismissed by current technology. The MSHA does not have regulations that would govern this activity, but has expressed concerns relative to safety with respect to the potential for propagation of fire through methane drainage boreholes into underground mines. There would also be an associated potential fire hazard where flammable brush, trees, or other vegetation exists in close proximity to the wellhead. These outstanding questions would have to be resolved if flaring is considered as an alternative to discharging methane into the atmosphere.

Additionally, flaring of methane would result in the release of other air pollutants, including nitrogen oxides, carbon dioxide, and carbon monoxide; these pollutants are regulated by the EPA for national ambient air quality standards (NAAQS). Methane is not a regulated gas. Therefore, the implementation of methane flaring is unlikely, given past and current practice and technology.

Also taken into consideration is the quantity of methane liberated from the B-Seam coal; Deserado's 2011 gob degas operations consisted of operating two degas holes 7 out of 365 days.

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (White River ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: 2-7

Decision Language: "Ensure that federal coal resources identified as acceptable for further consideration for coal leasing, are available for exploration, leasing and development." "The unsuitability criteria will be reapplied at the time an application is received." (See Appendix A)

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Standards for Public Land Health: In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an EA. These findings are located in specific elements listed below.

Cumulative Effects Analysis Assumptions: Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Table 1 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was the Red Wash and Scullion Gulch watersheds. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

Table 1. Past, Present, and Reasonably Foreseeable Actions

Action Description	STATUS		
	Past	Present	Future
Livestock Grazing	X	X	X
Recreation	X	X	X
Invasive Weed Inventory and Treatments	X	X	X
Range Improvement Projects : Water Developments Fences & Cattleguards	X	X	X
Wildfire and Emergency Stabilization and Rehabilitation	X	X	X
Oil and Gas Development: Well Pads Access Roads Pipelines Gas Plants Facilities	X	X	X
Power Lines	X	X	X
Seismic	X	X	X
Vegetation Treatments	X	X	X

Affected Resources:

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment. Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 2 lists the resources considered and the determination as to whether they require additional analysis.

Table 2. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality	Impacts from leasing of the coal resources in the LBA would continue current impacts at the same level as in the past and present. See discussion below.
PI	Geology and Minerals	The Proposed Action would involve extraction of coal resources; see discussion below.
PI	Soil Resources*	See discussion below.
PI	Surface and Ground Water Quality*	See discussion below.
Biological Resources		
NP	Wetlands and Riparian Zones*	The entire lease tract proposal lies within the lower Red Wash watershed (i.e., downstream of Coal Ridge) and all channels encompassed by the lease tract are ephemeral. The nearest riparian community, a diminutive sedge-rush community with scattered tamarisk, is located about 1.5 miles upstream of the lease tract in the Red Wash mainstem. The nearest downstream riparian community (bulrush, cattail, coyote willow, and inland saltgrass) is located at the mouth of Red Wash on the White River floodplain, which is separated from the nearest lease tract boundary by 3.2 miles of ephemeral, low-gradient channel. Red Wash enters the river about 2.5 miles above the basin of Kenney Reservoir, a 335-acre in-channel impoundment that intercepts all runoff and sediment that may originate from the lease tract.
PI	Vegetation*	See discussion below.
PI	Invasive, Non-native Species	See discussion below.
PI	Special Status Animal Species*	See discussion below.
PI	Special Status Plant Species*	See discussion below.
PI	Migratory Birds	See discussion below.
NP	Aquatic Wildlife*	There are no aquatic systems within the proposed least tract. The nearest system that supports higher order aquatic vertebrate populations is the White River, which is separated from the nearest point of the lease tract by 3.2 miles of ephemeral channel. See discussions relevant to the potential for downstream habitat effects in the Special Status Animals Species section.

Determination[1]	Resource	Rationale for Determination
PI	Terrestrial Wildlife*	See discussion below.
NP	Wild Horses	The proposed project is not located within the designated Piceance-East Douglas Herd Management Area.
Heritage Resources and the Human Environment		
PI	Cultural Resources	See discussion below.
PI	Paleontological Resources	See discussion below.
NP	Native American Religious Concerns	There are no currently known locations of Native American Religious Concern near the project area. Tribal Consultation results are discussed in the Cultural Resources section.
PI	Visual Resources	See discussion below.
PI	Hazardous or Solid Wastes	See discussion below.
NI	Fire Management	The Proposed Action lies within a B-3 and a C-2 Polygon. Aggressive suppression actions will be taken in the B-3 Polygon due to the potential for cheatgrass invasion. Areas of the Proposed Action that lie within the C2 Fire Management Polygon would require point protection efforts during the management, using appropriate management response (AMR) of naturally ignited fires to promote a vegetation mosaic representing a spectrum of successional stages (age classes).
PI	Social and Economic Conditions	See discussion below
NP	Environmental Justice	According to the Census Bureau statistics (2010), there are no minority or low income populations within the area of the Proposed Action. (See discussion in Social and Economic Conditions Section)
Resource Uses		
PI	Forest Management	See discussion below.
PI	Rangeland Management	See discussion below.
NI	Floodplains, Hydrology, and Water Rights	There are no floodplains that will be impacted by the Proposed Action. Some mine dewatering will occur and this water will be used for drilling and other needs. Excess water will be surface discharged along ephemeral tributaries to Red Wash. These stream channels may have some minor erosion as a result of this action. However, due to the discharge design and the relatively brief period of discharges proposed, these impacts are expected to be minimal. This conclusion is based on site visits conducted in 2011 for proposed discharge facilities that are of similar design to what would be used to support this action. No additional freshwater use is proposed; therefore, water rights for the White River would not be impacted.
PI	Realty Authorizations	See discussion below.
NI	Recreation	The Proposed Action is not anticipated to remove, preclude, or negatively impact existing recreation opportunities and experiences.
PI	Access and Transportation	See discussion below.

Determination[1]	Resource	Rationale for Determination
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area.
Special Designations		
NP	Areas of Critical Environmental Concern	There are no ACECs in the project area.
NP	Wilderness	There are no WSAs in the project area or lands that meet the criteria for wilderness characteristics.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the WRFO.
NP	Scenic Byways	There are no Scenic Byways within the project area.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.
* Public Land Health Standard

AIR QUALITY

Affected Environment:

The Deserado Mine is located on the northern boundary of Rio Blanco County (Latitude: 40.194773 / Longitude: -108.723566), approximately 6.8 miles north northeast of Rangely, Colorado (population approx. 2,365), and south of State Highway 40 approximately 15 miles east of Dinosaur, Colorado. The climate ranges from semiarid to alpine and the complex terrain causes considerable climatic variability affecting precipitation and temperatures, with significant daily temperature changes. The project area is primarily comprised of pinyon/juniper woodland at elevations from 5,300 to 6,400 feet. The average annual precipitation ranges between 11 to 16 inches and is typically distributed fairly evenly throughout the year at nearly one inch per month, with mid-winter receiving the lowest average amounts and spring and fall the highest levels. Further east is the Flat Tops Wilderness Area, a large elevated and flattened dome plateau ranging from nearly 9,000 to just over 12,000 feet. The average temperatures for the area range from 5.2 ˚F in January to 89 ˚F in July. On average, there are 242 sunny days per year in Rio Blanco County, CO. The wind tends to blow from the south southeast in the spring and more from the south during summer and fall. Average wind speed is highest in the spring (mean wind speed = 7.8 mph), with highest peak gusts occurring in January through July.

Air quality in the region is affected by multiple activities currently conducted within the area. Activities occurring within the area that affect air quality include stationary source facilities such as gas compressor plants, sand and gravel pit operations. Portable source examples include facilities such as drill rigs, frac engines, gravel crushers, and asphalt plants. Mobile sources of emissions within the region would include highway or on-road vehicles, off-road vehicles such as construction related equipment (track dozers, loaders, backhoes, etc.), and recreational vehicles (snowmobiles, ATVs, and dirt bikes). Smoke from grass and forest fires represent area source emissions that can impact air quality. In general air quality within the region is good, and it is not an area within the region has been designated as a nonattainment area. Some of these activities have caused localized or regional level increases in pollution monitoring values within the past few years.

Implementation of the Proposed Action Alternative would result in emissions of criteria pollutants, hazardous air pollutants (HAPs), and GHGs. Fugitive particulate matter would be emitted when haul trucks and other vehicles associated with the mining activities travel on existing dirt roads or overland access routes to load-out locations. Emissions of particulate matter would be generated from processing equipment, material handling transfer points (including rail load-out locations), storage piles, and mine ventilation shafts. Air quality would also be impacted by fuel combustion sources, such as the engine exhaust emissions from mobile material handling equipment, personnel transport equipment, and any stationary fuel combustion sources. Additionally, all of these emissions would be generated from the construction of surface facilities as described above.

Regulatory Framework

The Clean Air Act (CAA), which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set NAAQS (40 CFR part 50) for criteria pollutants. Criteria pollutants are air contaminants that are commonly emitted from the majority of emissions sources and include carbon monoxide (CO), lead (Pb), sulfur dioxide (SO_2), particulate matter smaller than 10 & 2.5 microns (PM_{10} & $PM_{2.5}$), ozone (O_3), and nitrogen dioxide (NO_2).

The CAA established 2 types of NAAQS:

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.

The EPA regularly reviews the NAAQS (every five years) to ensure that the latest science on health effects, risk assessment, and observable data such as incidence rates are evaluated in order to re-propose any NAAQS to a lower limit if the data supports the finding.

The Colorado Air Pollution Control Commission, by means of an approved State Implementation Plan (SIP) and/or delegation by EPA, can established state ambient air quality standards for any criteria pollutant that are at least as stringent as, or more so, than the federal standards. Ambient air quality standards must not be exceeded in areas where the general public has access. Table 3 lists the federal and state ambient air quality standards.

Table 3. Ambient Air Quality Standards (EPA, 2011)

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 $\mu g/m^3$	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution [71 FR 61144, Oct 17, 2006]	$PM_{2.5}$	primary and secondary	Annual	15 $\mu g/m^3$	annual mean, averaged over 3 years
			24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3

					years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary	Annual (State Only)	0.03 ppm	Arithmetic Average
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

NOTE: Air quality in Rio Blanco County currently meets all NAAQS & CAAQS.

Emissions, Source Classifications, & Regulatory Authority

Emissions sources are generally regulated according to their type and classification. Essentially all emissions sources fall into three broad categories, stationary, mobile, and potable.

Stationary sources are generally non-moving, fixed-site producers of pollution such as power plants, chemical plants, oil refineries, manufacturing facilities, and other industrial facilities. This source class can also cover certain types of portable sources (based on regulatory technicalities). Stationary facilities emit air pollutants via process vents or stacks (point sources) or by fugitive releases (emissions that do not pass through a process vent or stack), such as reserve pits, or equipment leaks. Stationary sources are also classified as major and minor. A major source is one that emits, or has the potential to emit, a regulated air pollutant in quantities above a defined threshold. Stationary sources that are not major are considered minor or area sources. Stationary sources that take federally enforceable limits on production, consumption rates, or emissions to avoid major source status are called synthetic minors. The Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division (APCD) has authority under their approved SIP, or by EPA delegation, to regulate and issue Air Permits for stationary sources of pollution in Colorado.

Mobile sources of air pollution include motor vehicles and equipment that can be moved from one location to another (typically under their own power). Due to the large number of these sources, which includes cars, trucks, buses, locomotives, construction equipment, lawn and garden equipment, aircraft, watercraft, motorcycles, etc…, and their ability to move from one location to another, mobile sources are regulated differently than stationary sources. In general EPA and other federal entities retain authority to set emissions standards for these sources depending on their type (on-road or off-road) and class (light duty, heavy duty, horse power rating, weight, fuel types, etc.). Mobile sources are not regulated by the state unless they are covered under an applicable SIP specific to a nonattainment or maintenance area requirement. Portable sources are represented by equipment such as concrete and asphalt batching plants, and potentially frac engines and drill rigs in the technical sense. These sources are relocated from place to place periodically and generally do remain in a single location long enough to be classified as a stationary source. Some portable sources equipment is regulated by CDPHE permitting.

Criteria Pollutants
All the criteria pollutants shown in Table 3 above can be directly emitted by the various source types, with the exception of ozone and secondary $PM_{2.5}$ (also known as condensable particulate matter).

Ozone is chemically formed in the atmosphere via complex reactions of oxides of nitrogen (NO_X) and volatile organic compounds (VOCs) in the presence of sunlight and under certain meteorological conditions (NO_X and VOCs are Ozone precursors). In general, ozone concentrations in the lower atmosphere are highest during warmer months, when the incidence angle of the sun relative to the surface is optimal to support the reactions. In some parts of the western U.S., high winter-time ozone concentrations have been monitored, and these events have generally been linked to areas with high snow cover. It is hypothesized that adequate snow cover (depth) effectively reflects UV radiation striking the ground, essentially 'doubling' the potential of the reaction rates relative to the available surface UV. Ozone formation and prediction is complex, non-linear, and generally results from a combination of significant quantities of VOCs and NO_X emissions from various sources within a region. Ozone formation may not occur within the resource area, and once formed it has the potential to be transported across long ranges. Therefore, it is typically not appropriate to assess the potential ozone impacts that a single project, where increases in precursor emissions will occur, can have on regional ozone formation and transport. However, the State assesses potential ozone impacts from its authorizing activities on a regional basis when an adequate amount of data is available and where such analysis has been deemed appropriate. For this reason (inappropriate scale of analysis), ozone will not be further addressed in this document beyond the related precursor discussions, and an appropriate qualitative analysis.

According to the EPA fine particulate matter ($PM_{2.5}$) is chiefly comprised of five mass components: organic carbon, elemental carbon (also known as soot or black carbon), ammonium sulfates, ammonium nitrates, and crustal materials (i.e., soil). Primary fine particulate emissions result from combustion processes (including fossil fuel combustion and biomass combustion that occurs in wild fires) and include organic and black carbon. A minority component of primary $PM_{2.5}$ is made up of crustal elements (i.e. fugitive dust, generally 5-15 percent). Condensable particulate matter, or secondary $PM_{2.5}$ particles, are primarily ammonium sulfate and ammonium nitrate formed in the atmosphere from gaseous emissions of sulfur dioxide (SO_2) and oxides of nitrogen (NO_X), reacting with ammonia (NH_3). The largest constituents of fine particulate are usually organic mass, ammonium nitrates, and ammonium sulfates. Secondary particulates do not result from emissions of fugitive dust (which is the largest emissions category from the Deserado Mine), and thus will not be discussed further in this document.

Hazardous Air Pollutants
Toxic air pollutants, also known as HAPs, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. The majority of HAPs originate from stationary sources (factories, refineries, power plants) and mobile sources (e.g., cars, trucks, buses), as well as indoor sources (building materials and cleaning solvents). No ambient air quality standards exist for HAPs, instead emissions of these pollutants are regulated by a variety of laws that target the specific source category and industrial sectors for stationary, mobile, and product

use/formulations. The majority of HAPs emitted from the Deserado Mine's operations are the result of the on-road and non-road vehicle use. The largest component of the HAPs emissions from these sources are typically various benzene compounds, and the majority of them are emitted from spark ignition (gasoline fueled) combustion sources. This is simply due to the fact that benzene is present in larger percent volumes in the fuel (typically 1.0 percent vs. 0.05 percent for diesel fuel).

Green House Gases

Gases that trap heat in the atmosphere are often called greenhouse gases, and include carbon dioxide (CO_2), water vapor, methane (CH_4), Nitrous Oxide (N_2O), and several fluorinated species of gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Carbon dioxide is emitted from the combustion of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). Methane is emitted during the production and transport of coal, natural gas, and oil. Methane also results from livestock and other agricultural practices and by the decay of organics in both the natural environment and from wastes in municipal landfills. Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Fluorinated gases are powerful greenhouse gases that are emitted from a variety of industrial processes and are often used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons).

These gases all have various capacities to trap heat in the atmosphere, which are known as global warming potentials (GWPs). Carbon dioxide has a GWP of 1, and so for the purposes of analysis a GHG's GWP is generally standardized to a carbon dioxide equivalent (CO_2e), or the equivalent amount of CO_2 mass the GHG would represent.

As with the HAPs, ambient air quality standards do not exist for GHGs. 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 most recent rules promulgated by EPA to regulate GHG emissions and the industries responsible are the Mandatory Reporting Rule (74 FR 56260) and the Tailoring Rule (70 FR 31514). Under the Mandatory Reporting Rule, Underground Coal Mines subject to the rule are required to report GHG emissions in accordance with the requirements of Subpart FF. Under the provisions of the Tailoring Rule (step 2 – July 2011) a facility would be subject to Title V & PSD permitting if it has the potential to emit GHGs in excess of 100,000 tpy of CO_2e equivalent and 100/250 tpy of GHGs on a mass basis.

Air Quality and Prevention of Significant Deterioration (PSD)

Air quality for any given area (any geographical area that defines the class boundary) is designated as either attainment, or nonattainment. Attainment areas are those areas where criteria pollutant concentrations in ambient air do not exceed the NAAQS levels as outline above. Areas or regions where a criteria pollutant concentration in ambient air has exceeded the NAAQS are designated as nonattainment. Two additional subset categories of attainment exist for those areas where a formal designations have not been made, i.e. Attainment/Unclassifiable (generally rural, or natural areas), and for areas where previous violations of the NAAQS have been documented, but pollution concentrations no longer exceed NAAQS concentrations, i.e.

Attainment/Maintenance areas. Rio Blanco County (i.e. the project area) is designated as an attainment area for all NAAQS pollutants.

All geographical regions are assigned a priority Class (I, II, or III) which describes how much degradation to the existing air quality is allowed to occur within the area under the Prevention of Significant Deterioration (PSD) regulations. Class I areas are areas of special national or regional natural, scenic, recreational, or historic value, and essentially allow very little degradation in air quality, while Class II areas allow for reasonable industrial/economic expansion. There are currently no Class III areas defined in Colorado.

For an area that is in attainment for the NAAQS and CAAQS, the CAA provides specific criteria for stationary sources to allow for economic growth under the PSD regulations (40 CFR 52.21 or 40 CFR 51.166 for SIP approved rules). Major PSD sources (or major modifications to existing PSD sources) are required to provide an analysis to ensure their net emissions will not cause or contribute to a violation of any applicable NAAQS or PSD increment. In addition, the analysis required for permitting must include impacts to surface waters, soils, vegetation, and visibility (also known as air quality related values (AQRVs)) caused by increases in emissions, and from any associated growth (or growth in industrial, commercial, and residential sectors that will occur in the area as a direct result of the source). Where a PSD source is located near a Class I airshed (within 50km) the AQRVs thresholds set by the applicable Class I controlling agency (Federal Land Manager) must be assessed to determine if an adverse impact on the area is likely to occur. According to the most recent valid permit issued by CDPHE, the Deserado Mine is not a major PSD source for criteria pollutants. There are no Class I areas within 50 km of the Deserado Mine, however, Dinosaur National Monument (a Class II Area) has been afforded Class I area protections from emissions of SO_2.

Given the above and the fact that the BLM is not the regulatory authority authorizing emissions and enforcing applicable permit conditions for the mine's operations; the mine is not located within 50km of any Class I area; it is not a significant source of SO_2; and the proposed action would not authorize or anticipate an increase in emissions from the mine's operations, the BLM will not be providing any additional analysis for potential Class I area direct impacts for the proposed action since they are not expected to occur.

Environmental Consequences of the Proposed Action:

The Proposed Action Alternative will produce direct and indirect emissions of the above identified pollutants. As stated in the Proposed Action Alternative, and No Action Alternative, emissions rates or intensities would not increase under either alternative and therefore the emissions inventory can reasonably be expected to be the same for each alternative based on the fact that authorized production rates, and currently employed extraction and processing methodologies would not increase or change under either scenario.

Direct Emissions

With the exception of particulate matter all of the directly emitted criteria pollutants originating for the mine's operations are from fuel combustion sources, such as mobile mining equipment, haul trucks, and stationary sources (emergency generators, light poles, heaters, etc.). HAPs and GHGs are also emitted from fuel combustion sources, albeit in *de minimis* amounts. CMM will

also be emitted by the ventilation air handling system required by MSHA to reduce the combustion/explosion potential of the mine's underground atmosphere (this methane is also known as Ventilation Air Methane or VAM). BME also plans to drill gob vent boreholes (GVB) as part of its operations at the mine. GVBs act to drain any trapped methane gas in the coal formation, overburden, and surrounding strata to reduce the potential buildup of the gas within the mine as the coal is extracted. Methane emissions from these activities would require reporting to EPA under the previously mentioned Mandatory Reporting Rules if reporting thresholds are exceeded.

Although methane is not a regulated volatile organic compound, recent analyses of CMM gas from other mines in Colorado, including the West Elk and Elk Creek mines in the North Fork Valley (Delta and Gunnison Counties), indicate that regulated volatile organic compounds make up a percentage of the CMM constituents, and these gases would be released as result of CMM venting. BME has yet to perform or initiate a thorough screening assessment of its operations to determine the mine's status for VOC emissions under the Clean Air Act. Although the BLM is not the regulatory agency for determining major source status for stationary sources of emissions (i.e., CDPHE), it is likely that a screening/CMM sampling analysis would need to be initiated for a sufficient period of time to determine if there is a reasonable correlation between the gases' methane and VOC percentages. This would allow the mine and/or CDPHE to perform a back calculation of the mine's known CMM releases from its required MSHA sampling data and determine a reasonable total for any VOCs released. If through sampling it is shown that a reasonable correlation does not exist (i.e., highly variable percentages), then more detailed and prolonged sampling and gas analysis would probably be required to make a determination of regulatory applicability. Given the low permitting thresholds for VOCs in Colorado, it is likely the mine would be subject to at least minor source permitting or Air Pollution Emission Notice (APEN) submissions. To reiterate, CDPHE, not the BLM, will determine an appropriate methodology and or requirements to determine regulatory applicability for these sources of emissions in Colorado. It is the BLM's understanding through personal communication with CDPHE staff that discussions within APCD are ongoing about providing resolution for this matter on a state-wide basis.

Stationary sources (including any area and fugitive emissions) at the Deserado Mine are regulated by CDPHE where applicable and are authorized by several APCD permits (12RB802-1F, 12RB802-2, 12RB802-3F, 12RB802-5, 12RB802-6, 85RB327F, 89RB317F, 93RB1171F, 00RB0283).The permits provide limitations and requirements to limit potential emissions from the site to below major source thresholds for certain criteria pollutants. The Deserado Mine is currently classified as a synthetic minor source for all criteria pollutants and would therefore not be subject to the PSD rule requirements for permitting of those pollutants at this time. When pollutants are not explicitly addressed in an APCD permit it is due to the fact that those emissions are below CDPHE's permitting thresholds, or in the case of GHG's, are not part of the State's minor source permitting program. The Deserado Mine last had one if its air permits revised and issued by APCD on Jun. 25, 2009. It is not probable given the age of the permit that CDPHE evaluated the status of the mine for major source determination for GHG's. As previously stated Blue Mountain Energy does not anticipate modifying its permit to accommodate any additional production it would realize from the availability of additional coal

reserves within the proposed LBA area. Stationary sources of direct emissions at the mine include the following:

- Material Handling Conveyors
- Mine Ventilation Shafts
- Internal Combustion Engines
- Fuel Storage Tanks
- Material Processing Screens
- Material Processing Crushers
- Surface Operations (fugitive PM)
- Misc. Facility Heating Equipment

HAP emissions from stationary sources are considered *de minimis*. For the purposes of disclosing impacts from the alternatives proposed, insufficient data exists to determine if any portion of the CMM released as VAM or GVB emissions would be considered a hazardous air pollutant. Of the sources identified above, only the fuel tanks, internal combustion engines, and miscellaneous heating equipment would generate HAP emissions. Because of the limited use or the exempt status of the identified units, expected cumulative HAP emissions from these sources would be on the order of pounds per year, and therefore will not be analyzed any further in this document.

Mobile sources at the facility include underground mining equipment, listed under source classification code (SCC) 2270009010, aboveground construction equipment identified under SCC 2270002000, as well as light duty gasoline trucks and light and heavy duty (Off-Highway) diesel trucks. The underground mining mobile sources are specialized, industry specific equipment designed to function in the unique environment of an underground mine, while the aboveground sources would be heavy construction equipment used for material handling and stockpile management.

To provide acceptable emissions estimates and to fully disclose expected direct emissions from the facility's mobile sources, BLM staff utilized EPA's NONROAD Model (2008a) to generate SCC specific emissions factors (grams per horsepower-hour) for Rio Blanco County based equipment inventories for the year 2008. To estimate emissions from the sources, BLM staff had to determine a reasonable thermal efficiency (TE) for the diesel equipment in order to determine the total horsepower-hours the mine's annual fuel use would provide to the equipment. This was necessary because the annual fuel use was the only fleet specific variable the BLM had to estimate emissions in Table 4 below

BME also uses light duty gasoline and diesel trucks (LDGT & LDDT) to ferry personnel, equipment, and supplies around the mine and to conduct daily business. BME provided the annual fuel use (diesel and gasoline) for these sources, however BLM staff could not delineate the minor amount of diesel that would be consumed by the LDDT from the Heavy equipment since no information was available to describe the LDDT fleet characteristics or annual vehicle miles travelled. Therefore, no emissions estimates from these sources are provided; instead the analysis assumes all the diesel fuel is consumed by the heavy equipment, which would produce

conservative or worst case emissions estimates since these sources emit higher amounts of pollutants per unit of energy consumed than LDDT would.

Table 4 Annual Direct Criteria and GHG Emissions (Tons)

Source Type	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	N_2O
ALL APEN Reported Sources	124.15	14.26	NA	NA	NA	NA	NA	NA	NA
Vent Construction Fugitives	1.97	0.51	NA	NA	NA	NA	NA	NA	NA
Fuel Storage Tanks (XA)	NA	NA	3.99[2]	NA	NA	NA	NA	NA	NA
Emergency Generator (TBD)	0.01	0.01	0.01	0.14	0.13	0.00	19.43	0.00	ND
Methane Sources (VAM)	NA	NA	ND	NA	NA	NA	19,011	923	NA
Methane Sources (GVB)	NA	NA	ND	NA	NA	NA	ND	ND	NA
Misc. Heating Equipment	0.17	0.42	0.67	6.28	10.89	0.42	10,468	0.17	0.08
Underground & Surface Mining Equipment	2.16	2.10	3.22	14.48	17.81	0.34	1,580.86	0.09	0.04
Pick-ups (Mine Operations)	0.06	0.06	0.09	1.26	0.13	0.04	186.10	ND	ND
Vent Construction (Heavy Equipment & Worker Trips)	0.11	0.10	0.13	0.68	1.39	0.02	139.34	0.01	0.00

[1] ND = No Data, NA = Emission type not applicable to the source.
[2] Emissions based on General APEN exemption (XA) threshold in attainment area (< 2.0 tpy) x 2 tanks.
[3] Mobile sources emissions are for exhaust only.

Indirect Emissions

Electrical energy consumed at the site (mine and electric rail) can reasonably be expected to produce emissions from the supplying source, unless that source is some form of renewable energy. It is possible to provide rough estimates of emissions resulting from mine electricity consumption if the annual energy consumption data is known. Reasonable emissions estimates can be made for some pollutants (NO_X, SO_2, CO_2, N_2O, & CH_4) by making use of EPA's Emissions & Generation Resource Integrated Database (eGRID). The eGRID tool is a comprehensive inventory of environmental attributes of electric power systems and is based on available plant-specific data for all U.S. electricity generating plants that provide power to the electric grid and report data to the U.S. government, including the following agencies: EPA, the Energy Information Administration (EIA), and the Federal Energy Regulatory Commission (FERC). Emissions data collected by EPA is integrated with generation data from EIA to produce useful values like pounds of emissions per megawatt-hour (lb/MWh), which allows direct comparison of the environmental attributes of electricity generation by state, U.S. total, company, and by three different sets of electric grid boundaries. Table 5 provides an estimate of indirect emissions for the mine's electrical consumption data for 2011. The most recent data available online (2005) suggests Colorado imports only 1-3 percent of its total electricity demand on an annual basis. For the practical purposes of this EA, the BLM considers Colorado to be neither a net energy exporter, nor importer, and therefore all indirect emissions estimates from mine and rail electricity consumption are based on Colorado source data.

Combustion of the mined and processed coal will produce all of the emissions outlined above. Since the Deserado Mine is a captive mine, the BLM knows with certainty that all of the coal produced will be used to generate electricity, and further, that the produced coal will be consumed entirely by the previously mentioned Bonanza Power Station in Utah. Just as the mine's electrical consumption data can be utilized in concert with the eGRID data to produce emissions estimates, the same can be done for coal combustion for any production volume if the energy content of the coal is known or can be reasonably estimated. To produce these estimates, BLM staff used the specific eGRID data for the Bonanza Power Station along with EPA facilities emissions data for Bonanza from 2008. The emissions factors from the eGrid data were used to estimate the firing rates (annual heat input) for Bonanza Power Station and derive additional emissions factors (from the EPA facility specific emissions rates for (2008)) for other pollutants that are not accounted for in EPA eGrid data. The heat input was then scaled to the Potential to Emit (PTE) heat input rate based on average energy content of the coal and the maximum production rate of coal the Deserado Mine can achieve under its CDPHE air permit. The PTE heat input and the emissions factors were used to provide a worst case annual estimate of indirect emissions for maximum coal production and are shown in Table 5 below.

Table 5. Annual Indirect Criteria and GHG Emissions (tons)

Source	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	N_2O
Electricity[2] Consumption	ND	ND	ND	ND	52.82	45.81	34,536	0.42	0.53
Coal Combustion (Bonanza) [1]	771.08	634.37	68.35	564.82	8,522.64	1,188.40	5,019,648	56.79	85.20
Total Indirect Emissions (tons)	771.08	634.37	68.35	564.82	8,522.64[3]	1,188.40[3]	5,019,648[3]	56.79[3]	85.20[3]

ND = No Data

[1] Estimates made from 2005 Colorado eGrid data (EPA), and the 2011 electrical consumption data for the mining and rail operations.

[2] Combustion emissions estimates made from derived firing rate correlations between 2005 Bonanza eGrid data and EPA facility specific emissions for the Bonanza Power Station (2008).

[3] Electricity production for the haul train and the mine comes from the Bonanza power station therefore emissions for this electricity are included in these totals.

Table 6. Summary of Rio Blanco County Emissions Inventory (EPA NEI 2008)

CO County Reported Emissions by Source Rio Blanco	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	N_2O	NH_3	HAPs
Emissions Sector Summary											
Agriculture	42.31	8.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biogenics	0.00	0.00	0.00	5,690.84	447.13	0.00	0.00	0.00	0.00	0.00	3,543.20
Bulk Gasoline Terminals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.53
Commercial Cooking	1.63	1.62	0.23	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Dust	3,775.66	583.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fires	120.34	101.98	274.07	1,158.34	18.61	9.56	15,245.30	57.29	0.00	19.07	29.14
Fuel Comb	167.13	166.98	513.70	2,166.22	2,792.62	21.17	0.00	0.00	0.00	4.99	153.81
Gas Stations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
Industrial Processes	980.27	310.35	2,451.91	294.82	208.45	15.67	0.00	0.00	0.00	0.00	184.88
Miscellaneous Non-Industrial NEC	0.00	0.00	6.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.52
Mobile	37.93	32.08	460.96	3,078.08	455.84	11.17	80,506.60	3.67	0.53	4.74	128.06
Solvent	0.00	0.00	0.00	8.30	1.50	0.00	0.00	0.00	0.00	0.00	15.16
Waste Disposal	7.89	6.19	5.06	0.03	0.34	0.07	0.00	0.00	0.00	0.02	2.21
Total County Emissions (tons) =	**5,133.16**	**1,211.42**	**3,711.95**	**12,397.24**	**3,924.49**	**57.65**	**95,751.90**	**60.96**	**0.53**	**28.82**	**4,062.45**

Air Quality Impacts

The region surrounding the Proposed Action Alternative area (APCD-Western Counties) is currently designated as attainment for all criteria pollutants. The attainment status for pollutants in the project area is determined by monitoring levels of criteria pollutants for which NAAQS and CAAQS apply. The attainment designation means that no violations of any ambient air quality standard have been documented in the area. The area around the proposed alternative action area is also identified as Class II, which allows for reasonable economic growth. The Proposed Action analyzed in this EA does not address any increase in production above currently authorized levels, and would not constitute adding additional production to previously authorized limits.

Air Monitoring

Within the western counties monitoring region, Grand Junction (APCD-Western Counties) is the only large city, and the only location that monitors for CO and air toxics. In 2008, Rifle, Palisade, and Cortez began monitoring for ozone. The other Western County locations only monitor for particulates. They are located in Delta, Durango, Parachute, and Telluride. Currently, there are four gaseous pollutant monitors and 11 particulate monitors in the Western Counties area. There are one CO, three O_3, eight PM_{10}, and three $PM_{2.5}$ monitoring sites. PM_{10} data trends are available back to 1987 where monitors existed. In 2004 there were 20 $PM_{2.5}$ monitoring sites in Colorado. Thirteen of the 20 sites were selected based on the population of the metropolitan statistical areas and included Denver, Grand Junction, Steamboat Springs, Colorado Springs, Greeley, Fort Collins, Platteville, Boulder, Longmont, and Elbert County. This is a federal selection criterion that was developed to protect the public health in the highest population centers. In addition, there were seven special-purpose monitoring (SPM) sites. These sites were selected due to historically elevated concentrations of PM_{10} or because citizens or local governments had concerns of possible high $PM_{2.5}$ concentrations in their communities. All SPM sites were removed as of December 31, 2006 due to the low concentrations of $PM_{2.5}$ measured and a lack of funding.

Because the Deserado Mine is primarily a source of PM_{10} emissions, only the recent monitoring data for particulate matter is shown below. More so than other pollutants, PM_{10} is a localized pollutant where concentrations vary considerably. Thus, local average and maximum concentrations of PM_{10} are more meaningful than averages covering large regions or the entire state. The data below is presented for qualitative purposes only.

Table 7. Localized Monitoring Data (2010)

County	Location	PM_{10}			$PM_{2.5}$	
		Annual [1]	24 Hour	3 Yr. Ave. Ex.	Annual	24 Hour
Delta	Delta - Health Dept 560 Dodge St.	23.4	125	0		
Garfield	Rifle - Henry Building 144 E. 3	25.5	59	0	< 3 yrs Data	< 3 yrs Data
	Parachute - Elem. School 100 E. 2	22.5	125	0		
Mesa	Grand Junction - Pitkin 645¼ Pitkin Ave.	26.8	171	1		
	Grand Junction - Powell 650 South Ave.	22.9	155	0	9.3	34.5
	Clifton - Hwy. 141 & D Rd.	23	189	3		

[1] Sources: Colorado Air Quality Data Report 2010, available at http://www.colorado.gov/airquality/tech.aspx

Potential Impacts Analysis for Criteria Pollutants

A detailed air quality assessment, including modeling, of the mine was conducted for previous permit modifications (2003) authorizing production capacities that are still currently in effect. The current APCD permit issued by the State authorizes up to 3.2 million tons of Run of the Mine (ROM) coal to be produced and processed annually. ROM coal includes any produced waste aggregates separated from the coal product that is sold from the mine. According to the CDPHE modeling review report the maximum 24-hour impact from the coal mine is 113.13 µg/m3, at or beyond the permit boundary. When a background of 34 µg/m3 is added, the cumulative impact is 147.13 µg/m3. This is below the federal standard of 150 µg/m3. The maximum annual impact beyond the permit boundary is 38.21 µg/m3. When a background of 10 µg/m3 is added, the cumulative impact is 48.21 µg/m3. This was below the federal annual PM_{10} standard of 50 µg/m3, which has since been rescinded. Subsequently APCD issued the approved modified permit for the mine.

With respect to all mobile sources at the site, emissions from these sources are not expected to impact regional air quality due to the fact that they are a very small portion of the existing county inventory and are not significant by themselves. No increase in the current use is expected by the potential approval of the LBA, and current air quality in the region (i.e. attainment) should not be affected by their continued use.

With respect to potential ozone formation, the county level analysis of the emissions inventory suggests the region is potentially NO_X limited (background biogenic VOC emissions not shown in EPA NEI). Therefore, to effectively limit any potential for ozone formation due to area emissions, control methods should focus on reducing NO_X emissions. By continuing to limit the minor reaction species, ozone formation potential from area emissions should remain small. The reader should be advised that only full scale photochemical grid modeling (which is beyond the scope of this EA) can reasonably predict the limiting reactant. The BLM provides the above assertion based on reasonably available literature analyzing potential ozone formation in rural areas during the typical ozone season (i.e., summer). The Deserado Mine sources (including all of the diesel fired mobile sources) and associated processing equipment are not significant sources of NO_X or VOC emissions (see earlier discussion on CMM VOC data limitations), the photochemical reactivity potential of methane in the troposphere is considered negligible (40CFR51.100 (s)), and therefore the mine's operations are not expected to contribute significantly to any regional ozone formation potential.

The Deserado Mine produces relatively insignificant quantities of $PM_{2.5}$ emissions as compared to the total Rio Blanco County inventory. The majority of the mine's $PM_{2.5}$ emissions are from process equipment and fugitive dust sources. These sources are not stack based dispersion sources which generally means that there is only a limited potential for the emissions to become effectively entrained in ambient air with sufficient buoyancy to produce measurable offsite impacts. This is primarily due to the low release height and near surface air turbulence that leaves the particles temporarily close to the ground where they are subject to removal by impaction on nearby horizontal and vertical surfaces, including ground, vegetation, and other structures. For this reason, it is not expected that the mine would have significant impacts regional $PM_{2.5}$ air quality standards.

Potential Impacts Analysis for Greenhouse Gas Pollutants

According to the U.S. 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 designed to measure factors that may contribute to climate change, and to quantify climatic impacts, are presently unavailable. As a consequence, impact assessment of specific impacts related to 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 environmental assessment within this air quality section is limited to accounting for GHG emissions changes that would contribute incrementally to climate change. Qualitative and quantitative evaluations of potential contributing factors are included where appropriate and practicable.

The analyzed methane emissions associated with the Deserado Mine are relatively low when compared to other Colorado underground coal mines. Methane emissions estimates are provided in the direct emissions table above. The estimations are based on current emission levels at the Deserado Mine (2009, 2010, & 2011).

Approximately 10.5 percent of U.S. emissions of methane come from underground coal mining activities (EPA 2010). Based upon the Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2010 (Draft), Februraty, 27, 2012, and the Final Colorado Greenhouse Gas Inventory and

Reference Case Projections 1990-2020, October 2007, the total coal mining related methane emissions (CMM) in 2009 and 2005 were 70.10 Tg (teragrams=one million metric tons), and 4.9Tg on a CO_2e basis for the U.S. and Colorado, respectively. Estimated total CMM emissions from the Proposed Action are approximately 19,379 short tons of CO_2 equivalent (at full authorized production) or 0.025 percent and 0.358 percent of the total calculated CO_2 equivalent emissions of CMM from the U.S. and Colorado totals. Based on BLMs analysis, all of the GHG emissions from the Proposed Action are equivalent to 0.0461 Tg on a CO_2e basis. This represents approximately 0.0397 percent & 0.0007 percent of all the gross GHG emissions (does not consider GHG sinks, i.e., "net emissions") from Colorado (2005 – 116.1Tg) and the US (2009 – 6,643Tg), respectively. If the calculated GHG emissions were compared with the global figures (2005 CO2 equivalent emissions of 26,544tg, ―World Development Report 2010: Development and Climate Change, World Bank, 2010), the relative significance of the impact to the global scale of GHG emissions would be even further negligible.

Regardless of the accuracy of emission estimates, predicting the degree of impact any single emitter of GHGs may have on global climate change, or on the changes to biotic and abiotic systems that accompany climate change, is not possible at this time. As such, the controversy is to what extent GHG emissions resulting from continued mining may contribute to global climate change, as well as the accompanying changes to natural systems cannot be adequately quantified. The degree to which any observable changes can, or would be, attributable to the Proposed Action cannot be reasonably predicted at this time. See cumulative impacts for further illustration.

With respect to GHG emissions, the following climate change predictions were identified by the EPA for the Mountain West and Great Plains region (http://www.epa.gov/Region8/climatechange/pdf/ClimateChange101FINAL.pdf):

- The region will experience warmer temperatures with less snowfall.
- Temperatures are expected to increase more in winter than in summer, more at night than in the day, and more in the mountains than at lower elevations.
- Earlier snowmelt means that peak stream flow will be earlier, weeks before the peak needs of ranchers, farmers, recreationalist, and others. In late summer, rivers, lakes, and reservoirs will be drier.
- More frequent, more severe, and possibly longer-lasting droughts will occur.
- Crop and livestock production patters could shift northward; less soil moisture due to increased evaporation may increase irrigation needs.
- Drier conditions will reduce the range and health of ponderosa and lodge pole pine forests, and increase the susceptibility to fire.
- Grasslands and rangelands could expand into previously forested areas.
- Ecosystems will be stressed and wildlife such as the mountain lion, black bear, long-nose sucker, marten, and bald eagle could be further stressed.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects:

Under the No Action Alternative, the Deserado Mine LBA area would not be approved for mining. Criteria, HAP, and GHG emission associated with the proposed LBA at the Deserado Mine would not occur. However, as stated above, emissions rates or intensities would not increase under either alternative and therefore the emissions inventory can reasonably be expected to be the same for each alternative based on the fact that authorized production rates, and currently employed extraction and processing methodologies would not increase or change under either scenario.

Cumulative Effects:

Reasonably Foreseeable Cumulative Actions

The following actions within the region are known or are reasonably foreseeable.

- Potential Oil and Gas Development
- Potential Oil Shale Development
- Bonanza Power Station

The leasing decision for the Deserado Mine would not authorize mining operations. The EA evaluates the potential impacts of mining the Deserado Mine, because mining is a logical consequence of issuing a lease for continued operation of the mine. The EA assesses the cumulative impact on the environment which results from the operation of the proposed mine when added to other past, present, and reasonably foreseeable future actions that would add to the anticipated impacts of the Proposed Action.

The site-specific impacts analyzed in this EA are based on the assumption that if the lease is issued mining would proceed at the current production rate of approximately 2 million tons per year. We further assume that the applicant would be the lessee and extraction of the coal resource would proceed in accordance with all current permit conditions. In addition, it is also assumed all of the coal will be consumed by the Bonanza Power Station.

Area Emissions

The following emissions data is presented to the reader to provide a comprehensive picture of near field emissions sources. Given the distances between the Deserado Mine and other APCD sources with the region (approximately 37 km on average), it is unlikely that the majority of the mine's emissions (i.e., PM_{10}) which are not emitted via a smoke stack will become buoyant enough to travel the distance required to provide for a measurable cumulative impact within the region. The same can be said for oil and gas development in the region, which is significant. The primary emissions of concern for these activities have traditionally been NO_X and VOCs (ozone precursors), neither of which are major emissions of concern from the Deserado Mine, and therefore the mine's contributions of these emissions in the regional context should produce on minor or insignificant impacts on potential regional ozone formation (see earlier discussion on CMM VOC data limitations).

Emissions from the Bonanza Power Station have been most recently analyzed by EPA during review of a construction PSD application for a waste coal-fired combustor unit (WCFC) that Deseret Generation and Transmission Co-Operative recently submitted an application for. The permit was eventually remanded back to EPA for failure to include CO_2 BACT requirements; however the statement of basis for issuing the permit for the other pollutants, and the associated

analysis of the impacts is still valid and is incorporated by reference for disclosing the cumulative power station impacts. A brief description of EPA's Statement of Basis (SOB) describing the modeling analysis and results follows.

A modeling protocol was submitted and methodologies were approved by the EPA and federal land managers (National Park Service, BLM). A dispersion model analysis was conducted for NAAQS compliance and PSD Class II increment compliance, and consisted of two phases: (1) a near field analysis for pollutants with emission rates above PSD significance levels including (CO, NO_2,SO_2, & PM_{10}), and (2) a full impact analysis. For each pollutant, results of the near field analysis determine whether a full-impact analysis is needed for that pollutant. Near field analysis was performed to determine pollutant concentrations at the fence line and beyond for the proposed WCFU alone. A full-impact analysis was performed to determine pollutant concentrations (SO2 and PM10) from all sources (including Bonanza Unit 1) within and around the area of impact, and at Class I areas (far-field), for compliance with NAAQS and PSD Class I and II increments. Additional modeling analyses were also performed as part of the far-field analysis, to ascertain the impact on regional haze (i.e., visibility), plume blight, and deposition at the Class I areas in Utah, Colorado, and Wyoming.

In short, the results of the modeling analysis were within the required guidelines for PSD permitting (40 CFR 52.21(k)) such that the EPA issued the permit. The original SOB is available on the EPA's web site (http://www.epa.gov/region8/air/) for further reading. The EPAs cumulative far-field review incorporated the existing Unit 1 and proposed WCFU emissions in its analysis, which would be ultra conservative as compared to just the existing Unit 1's emissions alone (it is unforeseeable as to whether or not the WCFU will actually be constructed at this time). The BLM's concern for the cumulative effects of coal combustion is primarily for PM_{10} (the major component of the Proposed Action's emissions profile). According to the EPA's review, the 'affected area' for PM_{10} would not extend beyond a few miles away from the Bonanza Power Station, and thus would not include the Deserado Mine's location. Therefore cumulative impacts of PM_{10} in the Proposed Action area should be minimal. Further, the EPA, not the BLM is the regulatory authority that authorizes emissions and controls implementation for this source. The BLM has no authority to require controls, monitoring, or reporting for emissions resulting from the sources operation, and therefore no further analysis for this source will be completed.

With respect to oil shale development, the technologies to extract this potential energy source are not yet proven, and therefore any future impacts (cumulatively or otherwise) associated with its development are too speculative to consider in this EA. However, the BLM is currently preparing a Programmatic EIS to address potential issues associated with oil shale development that may be beneficial to the reader when finalized. Project specific impacts from oil shale development will be evaluated when the economic viability of the resource is proven and reasonable alternatives for NEPA analysis can be developed.

Mining activities as well as other stationary sources of pollution related to air emissions are permitted by the Air Pollution Control Division of the CDPHE. The State imposes permitting limits and control measures in order to limit emissions of NAAQS pollutants. The State develops air quality attainment and maintenance plans in order to keep Colorado in compliance with the

Federal NAAQS. The cumulative impacts of the Proposed Action are not anticipated to exceed any NAAQS, or to push the region into nonattainment for any NAAQS, and should not result in any net change to baseline air quality given that the mine and Bonanza Power Station are existing sources within the regional emissions profile. With respect to mobile source emissions, these sources are regulated as outlined above, and are not expected to cumulatively impact regional air quality. If the last 30 plus years of the CAA is any guide, then emissions from these sources should continue to decline as fleets age and are replaced by better controlled units, such that even with record years of VMT, air quality in many areas of the county has vastly improved to the benefit of many local communities.

Table 8. 50km APCD Sources of PM_{10} & $PM_{2.5}$[1]

AIRS ID	Distance (km)	Facility Name	PM_{10}µm (tpy)	$PM_{2.5}$µm (tpy)
103-0014	0	BLUE MOUNTAIN ENERGY-DESERADO	124.15	14.26
103-0037	43.7	ROCKY MOUNTAIN NAT GAS- PICEANCE	< 85 % Threshold	1.35
103-0163	46.9	SOUTH-TEX TREATERS INC.-MEEKER PLANT	< 85 % Threshold	1.40
103-0322	49.2	ROCKIES EXPRESS PIPELINE, LLC-MEEKER	< 85 % Threshold	1.92
103-0021	17.7	NORTHWEST PIPELINE CORP RANGELY STA	< 85 % Threshold	2.61
103-0126	11.1	WADE COX-COX PIT	2.67	< 85 % Threshold
103-0032	40.9	ENCANA OIL & GAS (USA), INC-W DOUGLAS CR	3.34	3.34
103-0281	42.2	BARGATH LLC-SAGEBRUSH GAS PROCESSING	3.46	3.04
130-0164	48.3	EXXONMOBIL CORPORATION	3.71	< 85 % Threshold
103-0058	38.8	ACE WEST TRUCKING (WAS SIMS GRAVEL CO)	3.89	< 85 % Threshold
103-0265	46	BARGATH LLC-RYAN GULCH GAS	5.64	5.64
103-0108	43.1	RIO BLANCO CNTY ROAD & BRIDGE DEPT	8.20	< 85 % Threshold
103-0376	47	WESTERN GRAVEL, LLC-WRC GRAVEL PIT	10.95	3.22
103-0290	45.3	SAME F. LOVE-P&S GRAVEL PIT	13.43	3.95
103-0050	32.7	WRR SAND & GRAVEL- BLAIR MESA PIT	13.52	3.98
103-0036	39.5	ENCANA OIL & GAS-DRAGON TRAIL	13.91	13.89
103-0028	41.7	NATURAL SODA, INC.	21.15	17.75
103-0329	44.3	CONNELL RESOURCES-WHITE RIVER CITY PIT	24.60	7.23
103-0291	43.4	ENTERPRISE GAS PROC-MEEKER GAS PLANT	26.40	26.40
Ave. Dist. to Mine for ALL 50km APEN Sources	**37.74**	**APEN Emissions (50km -85 percentile shown above)**	**279**	**110**
		Total APEN Emissions (50km –total)	**319**	**128**
		% Deserado Emissions of All 50km APEN Sources	**39%**	**11%**

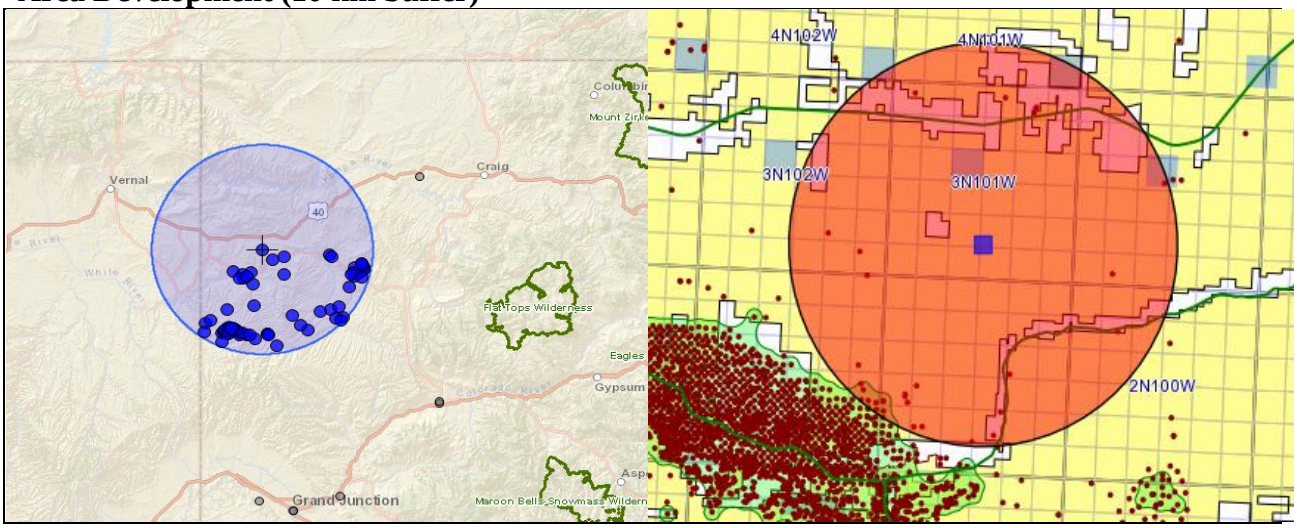
[1] Individual AIRS IDs listed represent > 85% of current APEN reported emissions levels for stationary point sources. APCD Website.

Table 9 COGCC Rangely Field Production Data[1]

Field Description	Data Year	Oil Production (bbl)	Gas Production (MCF)	Water Production (bbl)	Average Number of Producing Wells
RANGELY -#72370	2008	5,056,778	855,771	85,469,105	693
RANGELY-SOUTHWEST -#72375	2008		246,635	770	40
RANGELY WEST -#72376	2008		11,497	475	1
Annual Totals		**5,056,778**	**1,113,903**	**85,470,350**	**734**
RANGELY -#72370	2009	4,600,978	517,529	78,927,208	684
RANGELY-SOUTHWEST -#72375	2009		254,329	115	40
RANGELY WEST -#72376	2009		2,817	43	1
Annual Totals		**4,600,978**	**774,675**	**78,927,366**	**725**
RANGELY -#72370	2010	4,338,613	321,111	79,006,982	686
RANGELY-SOUTHWEST -#72375	2010		237,343	230	39
RANGELY WEST -#72376	2010		36	1	1
Annual Totals		**4,338,613**	**558,490**	**79,007,213**	**726**
RANGELY -#72370	2011	4,168,583	417,280	84,976,476	704
RANGELY-SOUTHWEST -#72375	2011		241,837	314	39
RANGELY WEST -#72376	2011		9		1
Annual Totals		**4,168,583**	**659,126**	**84,976,790**	**744**

[1] All data from COGCC Database.

Figure 3. APCD PM_{10} Sources and Class 1 Areas (50km buffer)[1] & COGCC Oil and Gas Area Development (10 km buffer)[2]



[1] 50km Buffer Map of PM_{10} sources generated from the following APCD website: http://www.colorado.gov/airquality/ss_map_wm.aspx, Deserado Mine located at crosshair in the center of the buffer area. Blue dots indicate all permitted or APEN sources in APCD Database within 50km buffer. Grey circles indicate monitoring APCD locations. Green polygons represent Class I Area boundaries, the closest being the flat Tops Wilderness Area, at approximately 100km.

[2] 10km Buffer Map of Well Locations generated from the following COGCC website: http://dnrwebcomapg.state.co.us/mg2010app/, Deserado Mine located at blue square in the center of the buffer area. High development area southwest of mine location is Rangely Field (COGCC 2012).

Climate Change

Continued mining, operation of mine surface facilities, and associated vehicle traffic, would result in minor cumulative contributions to the release of GHGs into the atmosphere. The BLM estimated the amount of GHG emissions that could be attributed to coal production as a result of the proposed lease. The mining, processing, and shipping of coal from the Deserado Mine would contribute to GHG emissions through carbon fuels used in mining (including fuel consumed by heavy equipment and stationary machinery), electricity used on site, methane released from mined coal, and electricity consumed by the rail transport of the coal. Policies regulating specific levels of significance have not yet been established for GHG emissions. Given the state of the science, it is not possible to associate specific actions with the specific global impacts such as potential climate effects. Since there are no tools available to quantify incremental climate changes associated with these GHG emissions, the analysis cannot reach conclusions as to the extent or significance of the emissions on global climate.

To provide additional context, the EPA has recently modeled global climate change impacts from a model source emitting 20 percent more GHGs than a 1500MW coal-fired steam electric generating plant (approx. 14,132,586 metric tons per year of CO_2, 273.6 metric tons per year of nitrous oxide, and 136.8 metric tons per year of methane). It estimated a hypothetical maximum mean global temperature value increase resulting from such a project. The results ranged from 0.00022 and 0.00035 degrees Celsius occurring approximately 50 years after the facility begins operation. The modeled changes are extremely small, and any downsizing of these results from the global scale would produce greater uncertainly in the predictions. The EPA concluded that even assuming such an increase in temperature could be downscaled to a particular location, it "would be too small to physically measure or detect", see Letter from Robert J. Meyers, Principal Deputy Assistant Administrator, Office of Air and Radiation re: "Endangered Species Act and GHG Emitting Activities (Oct. 3, 2008). The project emissions are a fraction of the EPAs modeled source and are shorter in duration, and therefore it is reasonable to conclude that the project would have no measurable impact on the climate.

If the regional climate change predictions outlined above are realized as mounting evidence suggests is already occurring, there could be impacts to resources within the region. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Warmer temperatures with decreased snowfall could have an impact on a particular plants ability to sustain itself within its current range. An increased length of growing season in higher elevations could lead to a corresponding variation in vegetation and change in species composition. These types of changes would be most significant for special status plants that typically occupy a very specific ecological niche. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened or endangered plants may be accelerated. Invasive plant species would be more likely to out-compete native species.

Increases in winter temperatures in the mountains could have impacts on traditional big game migration patterns. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Warmer winters with less snow would impact the Canada lynx by removing a competitive advantage they have

over other mountain predators. Earlier snowmelt could also have impacts on cold water fish species that occupy streams throughout the planning area. Climate change could affect seasonal frequency of flooding and alteration of floodplains, which could impact riparian conditions. More frequent and severe droughts would have impacts on many wildlife species throughout the region as well as vegetative composition and availability of livestock forage in some areas. Climate change could increase the growing season within the region; however, a longer growing season in theory would result in more forage production provided there is sufficient precipitation. Drier conditions could have severe impacts on forests and woodlands. This could leave these forests and woodlands more susceptible to insect damage and at higher risk of catastrophic wildfires. Increased fire activity and intensity would increase greenhouse gas emissions.

Stipulations to be Applied as Mitigation:

Criteria Pollutant Emissions

Mitigation measures and emissions controls would be implemented to reduce particulate matter/fugitive dust emissions during construction and ongoing production activities. It is assumed the facilities would continue to comply with their APCD issued air emissions permit provisions, and any other regulatory requirements the facility is subject to, now or in the near future (GHG emissions reductions, methane capture, New Source Performance Standards, etc.).

1. Fugitive emissions resulting from all vehicles traveling on non-paved surfaces during all project phases would be controlled utilizing water, chemical suppression, or a combination of the two by applying frequently or as needed to the non-paved road surfaces and in accordance with any permit condition or approved fugitive dust control plan required by CPDHE APCD. Storage piles would be watered as necessary to limit wind erosion potential and reduce fugitive emissions. Most of the coal transfer points and processing activities taking place at the Deserado Mine are either enclosed, employ moisture controls, or use other technologies such as bag houses and wet scrubbers to control emissions in accordance with the authorizing air quality permit requirements.

Greenhouse Gas Emissions

With regard to production activities at the mine, methane liberation from the mine may be reduced through mine planning, sealing previously mined areas, and degasification efforts.

GEOLOGY AND MINERALS

Affected Environment:

The proposed area lies within the White River Basin which is the eastern part of the larger Uinta Basin that extends from northwestern Colorado into eastern Utah. The existing mine is geologically located on the structural southern flank of the southeast plunging asymmetrical Red Wash Syncline. In the B-Seam mine area of the southern flank the syncline dips approximately 10 percent to the northeast. The northern flank of the syncline dips to the southwest in excess of 25 percent. The axis of the southeast plunging Red Wash syncline dissects the northern portion of the LBA. Surficial geology of the LBA is the upper unit of the cretaceous Mesaverde Group. Within northwestern Colorado the Mesaverde Group has been divided into two formations: the lower Iles Formation and the Williams Fork Formation which are separated by the Trout Creek Sandstone. The lower Williams Fork Formation contains coal seams identified as seams A

through J. Deserado Mine's zone of interest is the B-Seam located in the Lower Williams Fork Formation of the Mesaverde Group. Although there are several smaller coal seams, the B-Seam is the only mineable in the proposed LBA. It is divided into two separate splits, the Upper and the Lower B-Seam with a parting that ranges from 1 to 3 feet. The estimated coal reserve base is approximately 27 million tons (both splits of the B-Seam) and the estimated mineable reserve is 21.3 million tons (lower B-Seam). The majority of mining is projected to occur in the lower B-Seam.

The LBA is located in an area identified in the 1997 White River ROD/RMP as acceptable for further consideration for coal leasing and as having high potential for oil and gas occurrence. An isolated 40 acre parcel of Federal oil and gas lease COC73884 encumbers the NWNW, Section 21, Township 3 North, Range 101 West, 6th Principal Meridian of the LBA. No producing or abandoned oil and gas wells are within the LBA according to the Colorado Oil and Gas Conservation Commission (COGCC) database. A mining claim for locatable minerals adjoins the LBA on the northern border of the NE Section 20, Township 3 North, Range 101 West 6th Principal Meridian.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Deserado Mine Plan predicts maximum subsidence ranging from 4.2 feet to 7.7 feet in the longwall panels. The amount of subsidence is determined by the depth of overburden and the height of the coal seam mined. Typically, shallow overburden and higher mining height create greater surface expression of subsidence. Results from monitoring of surface subsidence from longwall mining at the Deserado Mine are below the predicted maximum vertical subsidence. Ninety-five to 98 percent of the subsidence resulting from longwall mining occurs during active mining. Long-term subsidence hazards are not expected with longwall mining since such hazards are manifested in a fairly short time. Subsidence above previously mined longwall panels along Rio Blanco County (RBC) roads 65 and 96 and the mine's power line has not interfered with usage of the roads or power line. BME's approved Deserado Mine Plan contains subsidence monitoring and mitigation. Quarterly subsidence reports are submitted to the Division of Reclamation Mining and Safety. Areas and structures that could be affected by subsidence include tributaries to Red Wash, RBC roads 65 and 73, Moffat County (MC) Road 61, clean coal slot storage, rail load out, associated power lines, and coal refuse disposal area. Given the past experience with subsidence at the mine site, subsidence is not expected to adversely affect these areas or structures.

Removal of the LBA coal would deplete the underground B-Seam recoverable resources and allow the maximum economic recovery of the underground coal resources in the LBA and the Deserado Mine area. MSHA regulations requires a coal barrier of not less than 300 feet in diameter around oil and gas wells which could limit the recovery of coal resources in the 40 acre parcel of oil and gas lease COC73884. However, it is unlikely mining would occur below the majority of parcel of COC73884 due to the increase in thickness of the partings within the B-Seam. Leasing and developing the coal resources would have little to no effect on the mining claims north of the LBA.

Cumulative Effects: Cumulative effects of longwall subsidence would be minimal to the geologic and mineral resources in the Red Wash and Scullion Gulch watersheds.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The recoverable deliverable coal resource of approximately 21.3 million tons would not occur. Denial of the LBA would indirectly reduce recovery of coal resources on adjoining leases due to the configuration of leases and the layout of mine development preventing the maximum economic recovery of the coal resources on existing leases. These conditions and the requirement of a 50 foot barrier pillar along lease boundaries could create a by-pass situation and a loss of recoverable coal resources on existing coal leases. Overall losses would be a combination of the 50 foot barrier pillar and the loss of coal resources due to less efficient mining methods, i.e. room and pillar mining compared to longwall mining. The BLM estimates the losses of recoverable reserves on existing adjacent coal leases would be approximately 2.5 million tons of coal. Not leasing the coal resources would also shorten the Deserado Mine's life by approximately 10 years or more.

It is unlikely these coal reserves would be recovered at a future time since there is no logical competitive interest based upon utilization of the lands or mining of the deposits due to the following:

- The applicant is the lessee of record holding the Federal leases adjoining and adjacent to the modification area.
- This LBA would allow a continuum of an existing mining block and would not represent an economic venture based on a stand-alone development of the property.
- The adjacent lands are managed by BLM or State of Colorado and the impacts associated with developing a new mine portal would be significant.
- The economic investment required in order to mine the LBA independent of the current leases held by BME would be unreasonable.
- The only logical access is from the applicant's existing adjacent leases and underground mine with its associated coal handling and processing surface facilities.

This would create a potential coal bypass situation with the effective loss of approximately 23.8 million tons of deliverable coal.

Cumulative Effects: None.

Stipulations to be Applied as Mitigation:

None.

SOIL RESOURCES

Affected Environment:

New surface disturbances associated with drilling of boreholes would be needed to support mining within the proposed new Red Wash Tract. Based on projected coal development within the proposed lease 30 degas holes, 30 nitrogen injection holes, and 10 ventilation shafts would be necessary for coal recovery. An estimated 56 acres of new disturbance would occur to build access roads and pads within the project boundaries. The exact location of these facilities cannot be determined but all surface disturbances would occur within the project boundaries. Soils within 98 feet (30 meters) of the lease expansion area and 98 feet around areas outside the lease boundary impacted by access roads are shown in the Table 10.

There are no fragile soils or lands prone to landslides on Federal lands that will be impacted by this project. There are about 36 acres of saline soils (conductivity > 16 millimhos) within the project boundary. Access roads outside the lease expansion area will use existing routes and will not require additional disturbance. New road construction will occur to individual drilling sites within the lease exploration area, but efforts will be made to use existing roads when possible.

Table 10. Soil Classifications within 98 feet (30 Meters) of the Surface Disturbance Proposed and the Boundary of the Lease Area.

SOIL #	SOIL CLASSIFICATION	RANGE TYPE	SLOPE	TOTAL ACRES
53	Moyerson stony clay loam	Clayey Slopes	15-65 %	1,313
94	Turley fine sandy loam	Alkaline Slopes	3-8 %	747
74	Rentsac-Moyerson complex	PJ Woodlands/Clayey Slopes	15-65 %	486
7	Avalon-Persayo moist-Degater complex	Semidesert Loam	3-30 %	194
90	Torrifluvents	Gullied	none	161
33	Forelle loam	Rolling Loam	3-8 %	79
130	Turley fine sandy loam	Alkaline Slopes	3-8 %	71
75	Rentsac-Piceance complex	PJ Woodlands/Rolling Loam	2-30 %	62
104	Yamac Loam	Rolling Loam	2-15 %	55
126	Massadona-Youngston moist complex	Semidesert Clay Loam	1-8 %	40
203	Turzo loam saline	Alkaline Slopes	1-8 %	36
32	Chroder sandy loam	Loamy Cold Desert	3-12 %	32
78	Rock Outcrop	None	none	30
64	Piceance fine sandy loam	Rolling Loam	5-15 %	23
48	Kobar silty clay cloam	Rolling Loam	3-8 %	20
93	Turley fine sandy loam	Alkaline Slopes	0-3 %	18
138	Moyerson-Rentsac Complex	Clayey Slopes	15-45 %	1

The most common soil type is Moyerson stony clay loam which is shallow, well drained, and occurs on ridges and side slopes of dissected plateaus formed from calcareous shale. Typically 5 to 20 percent of these Moyerson soils are covered with stones, flagstones, and boulders. These soils have rapid runoff, have a very high hazard for water erosion and a large range of slope classes. Turley fine sandy loam soils are deep well drained soils that formed on alluvium valley floors and are derived from calcareous shale mixed with eroded sandstones. Turley soils have medium runoff characteristics and a moderate hazard for water erosion. The Renstac-Piceance complex soils form on uplands, broad ridges, and foothills. Renstac-Piceance complex soils are shallow and well drained; runoff in these soils is medium and the hazard for water erosion is slight to moderate.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action is expected to result in 56 acres of surface disturbance associated with drilling test and ventilation wells; since no specific sites were selected these wells could be in any of the soils described above. No new mine facilities would be constructed in addition to these wells since the conveyer, electric train, and buildings built for

the current mine would be used during the mine expansion. Well drilling would result in minimal access roads and small pads to be built where locations are needed for mine activities. No new roads would be constructed outside the project boundary. Drilling for these facilities is typically quick and reclamation of unused portions of the road and pad can typically be started within the same season as the well is drilled. Due to the low productivity of soils, reclamation is typically relatively slow but should be successful within five years. Unused and old wells will be plugged and abandoned after the original contours of the site are re-established.

Due to the lack of vegetation and poor soils in this area it is likely that the Proposed Action will result in localized erosion along access roads and drill sites. Soil productivity and stability will be reduced in areas where this occurs. This erosion will be similar to what has occurred in this area from current access roads and well pads. Where this localized erosion occurs, best management practices described in the mitigation section should be employed to stabilize soils.

Accidental spills or leaks associated with equipment failures, refueling or maintenance of equipment, the rail line, and storage of fuel, oil, or other fluids could cause soil, surface water, and/or groundwater contamination. With proper mitigation impacts would be temporary. Impacts from actual mining activities would likely be below ground. Surface support facilities and loading for transportation of coal could result in small spills of oil, solvents, and fuels. However, good practices and proper maintenance of equipment is likely to reduce this risk to almost zero.

Cumulative Effects: Vegetation and soil disturbance in the project area may occur from livestock grazing and dispersed recreation. These activities typically have localized impacts such as accelerating erosion in areas of vehicle use or livestock trailing. Regional erosion rates are likely to increase over the project life due to the Proposed Action and other activities. Red Wash is known for poor soils and high erosion rates. Overall soil productivity compared to natural undisturbed conditions is not likely to be diminished based on the Proposed Action and other impacts.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The coal mine would not be expanded and the new lease area would not be developed; however, currently authorized mining would continue. Soil disturbance associated with the authorized mine activities would be similar to current conditions; however, reclamation for above ground facilities would likely begin more quickly since less coal would be mined over the long term (i.e. this alternative is likely to result in a shorter time to final abandonment of the mine facilities).

Cumulative Effects: Authorized mining activities, livestock grazing, and dispersed recreation would all continue at about current rates and intensities until all viable coal is used from existing leases.

Stipulations to be Applied as Mitigation:

The following should be added as conditions of approval to mitigate localized erosion and potential for spills identified in the impact analysis:

1. All drilling activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or activities have prior approval by the Authorized Officer.
2. In order to achieve public land health standards for soils, erosion features such as rilling, gullying, piping, and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the Authorized Officer and by submitting a plan to assure successful soil stabilization with best management practices to address erosion problems.
3. If salt is observed on the surface of soils during reclamation activities the Authorized Officer will be notified and a plan will be developed with approval of the BLM to improve reclamation on the site.
4. The release of any chemical, oil, petroleum product, produced water, or sewage, etc, (regardless of quantity) must be contained immediately, cleaned up as soon as possible, and reported by the project proponent to the Bureau of Land Management when beyond what could be expected for normal operations.

Finding on the Public Land Health Standard #1 for Upland Soils:

With mitigation this action is unlikely to reduce the productivity of soils impacted by surface disturbing activities

SURFACE & GROUND WATER QUALITY

Affected Environment:

This project is mostly within the Red Wash watershed with a small portion in Scullion Gulch; both are ephemeral streams that drain into the White River. These watersheds do not contain or directly drain into water bodies on the 303(d) list of impaired water bodies for the State of Colorado. To be listed, impaired water bodies must have been shown to exceed State of Colorado water quality classification standards. These water quality standards may be based on the biological, physical or chemical needs to meet a beneficial use of the water body, such as supporting aquatic life. The 303(d) list was last updated in March of 2012 for Colorado, and would identify water bodies that are not meeting the classification standards for water quality based on monitoring data. It is reasonable to assume that water bodies in Red Wash and Scullion Gulch are meeting water quality classifications, since they are not identified as being impaired.

The water quality classification of tributaries to the White River including Red Wash and Scullion Gulch (Segment 13a) from Piceance Creek to Douglas Creek is Aquatic Life Warm 2, Non-contact Recreation, and Agriculture. This segment is protected for warm water aquatic life (Warm 2). The warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperature frequently exceeds 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. These waters also have standards that are protective from non-contact recreation and agriculture. Segment 13a is use-protected, meaning that the quality of these waters may be altered by actions so long as applicable use-based water quality classification and standards are met.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action is to lease 3,154.76 acres of underground coal reserves and extend the life of the Deserado Mine. Well drilling would result in an additional 56 acres of surface disturbance that includes access roads and small pads to be built. Besides these wells, no new mine facilities would be constructed since the conveyer, electric train, and buildings built for the current mine would be used during the mine expansion. With proper construction and drilling practices, impacts to surface water quality are extremely unlikely. Groundwater may be impacted by dewatering activities and changes in the coal formation being mined, but impacts should be limited to the coal formation.

Drilling activities associated with the Proposed Action would alter overland flow and natural groundwater recharge patterns in localized areas due to the construction of pads and access roads. Potential impacts include surface soil compaction caused by construction equipment and vehicles, which would likely reduce the soil's ability to absorb water and increase the volume and rate of surface runoff, which in turn would increase surface erosion. Runoff associated with storm events may increase sediment/salt loads in surface waters down gradient of disturbed areas. Sediment can be deposited and stored in Red Wash where it would be moved into the White River during heavy convection storms. Surface erosion for this project is most likely during drilling activities and erosion would be unlikely with the mitigation in the Soils Resources Section.

During surface discharge of produced water, hydrology in ephemeral streams tributary to Red Wash may be impacted; however impacts are not expected due to the discharge design allowing for infiltration, the relatively brief period of discharges, and the low volume proposed. This conclusion is based on site visits conducted in 2011 for proposed discharge facilities that would be used to support this action.

Discharged water will meet permit standards established by the State of Colorado to protect surface water quality standards for White River Segment 13a. An antidegradation review would have been done before considering the surface discharge permit with the state. The discharge permit for this project has been effective for previous mining, and the Proposed Action would be within the considerations of this permit.

Cumulative Effects: Impacts from the Bonanza Power Plant in Utah on water quality could include air-born contaminants emitted during coal burning and storage of solid and liquid wastes from the power plant. Air-born contaminants could include sulfur oxides (SO_X) and nitrogen oxides (NO_X), that may be transported to alpine lakes and potentially change the pH of these lakes. The EPA has required some special design measures to reduce air emissions at the Bonanza Power Plant. However, even with these design features air-born mercury and selenium may be deposited in surface waters and could be a water quality concern when combined with other sources. Oil and gas development activities in the region contribute air pollutant emissions. The White River and tributaries to the White River below this location appear to be meeting standards for selenium and mercury in both Colorado and Utah since there are no segments listed on the 303d list for either state for these parameters.

Air quality permitting under the Clean Air Act is administered by the State of Utah for the power plant. It is assumed for this analysis that these standards and permit conditions are protective of surface waters for air-born pollutants. Actual emission rates are estimated and disclosed in the Air Quality Section. Storage of and proper disposal of solid wastes from the Bonanza Power Plant would be the responsibility of the State of Utah to comply with the Clean Water Act. There are no known violations of the Bonanza Power Plant with regard to the Clean Water Act and the location of the waste treatment facilities are more than 10 miles from the closest perennial waters (the White River in Utah). Therefore, it can be assumed that the power plant would comply with the Clean Water Act and it can be assumed for this analysis that this would be protective of water quality for beneficial uses including aquatic life.

Vegetation and soil disturbance within the project boundary would occur from livestock grazing and dispersed recreation. These activities typically have localized impacts such as accelerating erosion in areas of vehicle use or livestock trailing. Some of the soils have high runoff rates, specifically the Moyerson stony clay loam. Regional erosion rates are likely to increase over the project life due to the Proposed Action and other activities. Red Wash is known for poor soils and high erosion rates.

Water quality in stream segments below the project boundary are not expected to change in a measureable way due to the Proposed Action or other activities described above. Water segments are likely to continue to meet beneficial uses in both Colorado and Utah.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The coal mine would not be expanded, currently authorized mining would continue and the new lease area would not be developed. Soil disturbance would be similar to current conditions; however, reclamation for above ground facilities would likely begin more quickly (i.e. it is likely that final abandonment would occur more quickly without additional coal lease development).

Cumulative Effects: Authorized mining activities, livestock grazing, and dispersed recreation would all continue at about current rates and intensities.

Stipulations to be Applied as Mitigation:

No additional mitigation beyond what is required in the soils section is needed.

Finding on the Public Land Health Standard #5 for Water Quality:

It is unlikely that drilling activities, coal mining, or surface discharge of water from the mine would result in an exceedence of state water quality standards.

VEGETATION

Affected Environment:

The proposed lease encompasses multiple ecological sites (see Table 11).

Table 11. Ecological Sites

Ecological Site	Potential Plant Community	Acres
Alkaline Slopes	Galleta, Indian Ricegrass, Greasewood, Big Sagebrush, BudSagebrush, Bottlebrush Squirreltail, and Gardner Saltbush	819
Clayey Slopes	Salina Wildrye, Indian Ricegrass, Sandberg Bluegrass, Shadscale, Bottlebrush Squirreltail, Galleta, Spiny Horsebrush, and Western Wheatgrass	1,249
Deep Clay Loam	Basin Wildrye, Basin Big Sagebrush, Streambank Wheatgrass, Western Wheatgrass, Winterfat, Bottlebrush Squirreltail, Prairie Junegrass, Shadscale, and Saltbush	18
None/Rock Outcrop	No Vegetation	179
PJ Woodlands	Indian Ricegrass, Beardless Wheatgrass, Mountain Mahogany, Big Sagebrush, Prairie Junegrass, Bitterbrush, Pinyon, and Juniper	506
Rolling Loam	Bluebunch Wheatgrass, Western Wheatgrass, Big Sagebrush, Serviceberry, Prairie Junegrass, Sand Lupine, Needle and Thread, Indian Ricegrass, and Sandberg Bluegrass	141
Semi Desert Clay Loam	Basin Wildrye, Western Wheatgrass, Slender Wheatgrass, and Nebraska Sedge	32
Semi Desert Loam	Greasewood, Gardner Saltbush, Indian Ricegrass, Bottlebrush Squirreltail, Western Wheatgrass, Big Sagebrush, and Winterfat	210

The proposed lease area has vegetative communities that have been previously degraded from heavy grazing use. These areas are dominated by non-native invasive annual species such as cheatgrass, mustards, pepperweed, and halogeton. Areas dominated by these invasive annuals provide little forage value for wildlife and livestock, and these plant species do not have root masses that are well developed and capable of anchoring soils especially during heavy runoff and rainfall. These areas are most noticeable in the Alkaline Slope, Clayey Slope, and Rolling Loam ecological sites. Sites dominated by annual invasive species within the lease area have crossed a transitional threshold that can't be fixed without intense management actions which would include herbicide treatments and seeding.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Approving the coal lease for the proposed area will result in disturbance to vegetative communities on approximately 56 acres. The disturbance will include the complete removal of vegetation on well pads and access roads. Disturbance would be relatively short-term, and there is the potential for a slight benefit to vegetative communities with proper reclamation with competitive species adapted to the sites. The recommended seed mix in the mitigation section below (see Table 12) would be used for all surface disturbing activities unless a specific site determines an alternative seed mix would be required promote successful reclamation.

There is potential for sites to be invaded by non-native species as a result of the disturbance which could negatively impact vegetative communities. Proper reclamation is critical to maintaining or improving the health of vegetation in the area especially with an already high frequency of undesirable species in the project area.

Cumulative Effects: Past vegetation disturbance from dispersed recreation, livestock grazing and previous mining activities has occurred in the area. These activities are expected to continue within the project area, but should not lead to excessive degradation of vegetative communities with proper management and reclamation. Adequate reclamation to disturbed areas from mining activities could lead to improved vegetative communities and a shift from some areas not meeting land health standard #3 to where they are meeting the standard.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative will result in no impacts to vegetation within the project area.

Cumulative Effects: Past vegetation disturbance from dispersed recreation, livestock grazing and previous mining activities has occurred in the area. These impacts will not increase degradation of vegetative communities if the lease is not offered.

Stipulations to be Applied as Mitigation:

1. Reclamation plans with approved seed mixes will be developed for each site.
2. WRFO recommends the seed mix in Table 12. Seeding rates shown in the table are the drill seed rates and should be doubled and harrowed into the soil if broadcast seeding. The seed mix could be altered if it is determined that site specific conditions require a modification of the seed mix to promote successful reclamation.

Table 12. BLM Recommended Seed Mix

Common Name	Scientific Name	Pure Live Seed (PLS) lbs/acre	Variety
Thickspike wheatgrass	*Elymus lanceolatus*	3.0	Critana
Western wheatgrass	*Pascopyrum smithii*	3.0	Rosanna
Beardless bluebunch	*Pseudoroegneria spicata ssp. Inermis*	1.0	Whitmar
Bluebunch wheatgrass	*Pseudoroegneria spicata ssp. Spicata*	1.0	Antone
Slender wheatgrass	*Elymus trachycaulus*	4.0	Pryor
Pubescent wheatgrass	*Elytrigia intermedia*	1.0	Luna
Great Basin wildrye	*Leymus cinereus*	1.0	Trailhead

Bottlebrush squirreltail	*Elymus elymoides*	2.0	Toe Jam Creek
Indian ricegrass	*Achnatherum hymenoides*	2.0	Rimrock
Sheep fescue	*Festuca ovian*	0.2	Covar
Prairie junegrass	*Koeleria macrantha*	0.2	
Canby bluegrass	*Poa canbyi*	0.2	Canbar
Sandberg bluegrass	*Poa sandbergii*	0.2	
Alkali sacaton	*Sporobolus airoides*	0.1	
Green needlegrass	*Nassella viridula*	0.5	Lodorm
White yarrow	*Achillea millefolium*	0.1	Eagle Mountain
*Northern sweetvetch	*Hedysarum boreale*	1.0	
Lewis flax	*Linum lewisii*	0.4	

*Alternate

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:

Vegetative communities within the lease are generally meeting standards with some areas not meeting standards due to high amounts of annual invasive species as mentioned above. These communities lack adequate diversity of native perennial species and provide limited soil stability and forage value for wildlife and livestock. These areas are generally limited to the ecological sites listed above.

INVASIVE, NON-NATIVE SPECIES

Affected Environment:

In the state of Colorado, noxious weeds are categorized into three lists that outline the required level of management. List A species are designated by the state of Colorado for eradication. List B species are those noxious weed species that have or will have a state noxious weed management plan developed to stop their spread, and List C species are those species which weed management plans will be developed to aid in management for those jurisdictions that choose to require management of List C species.

The proposed lease area has no known List A species within the vicinity, but there are several List B and List C species. Bull thistle, Canada thistle, hoary cress, perennial pepperweed, Russian-olive, salt cedar, and Russian knapweed are all List B species present within or immediately adjacent to the proposed lease area. List C species that are present are primarily downy brome and halogeton. These are annual invasive species that in certain areas dominate the vegetative community. These areas are not meeting standards for land health and have crossed a transitional threshold that can’t be fixed without intensive management on a large scale that includes herbicide treatments and seeding.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Leasing of the proposed lands would result in approximately 56 acres of disturbance for mining activities across the 3,154.76 acres up for lease. The disturbance would require the complete removal of vegetation and soil disturbance for the construction of well pads and roads. Disturbance of soil and vegetation does create opportunity for weeds to establish or spread in disturbed areas. There is also an opportunity for new weeds to be brought into the area on construction equipment. The disturbance for these wells is relatively short-term averaging approximately 1 to 3 years while the area is being mined, and successful reclamation does provide an opportunity to improve existing vegetative communities.

Cumulative Effects: Past and current development in the area has caused disturbance of vegetative communities and provided an opportunity for weeds to establish. Previous reclamation along with weed management using mechanical and chemical control has minimized the spread of weeds and in some instances improved vegetation within the area. Development into the future is expected to continue, but with proper reclamation and management of weeds, cumulative effects are anticipated to be almost immeasurable at a landscape level.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would result in no lease being offered on the proposed lands and no surface disturbance would be required for coal mining.

Cumulative Effects: Past and present impacts are currently within the thresholds analyzed, and no additional effects would occur if no lease is offered.

Stipulations to be Applied as Mitigation:

1. BMEwill be required to manage weeds on areas disturbed for mining activities.
2. Pesticide Use Proposals (PUPs) will be submitted and approved by the WRFO prior to the use of any herbicides on BLM lands.
3. Herbicide use will be under the supervision of a certified pesticide applicator
4. Pesticide Application Records (PARs) will be submitted to the WRFO at the end of each field season (October 31st). PARs are required to be filled out every day that herbicides are applied.

SPECIAL STATUS ANIMAL SPECIES

Affected Environment

Section 7 Consultation (listed Colorado River fishes) and Conferral (Experimental Non-essential population of black-footed ferrets) with the U.S. Fish and Wildlife Service (FWS) was initiated on July 6, 2012 with regard to potential influences of the Proposed Action on listed and proposed threatened and endangered species. The FWS concurs (FWS 2012) with the BLM's Biological Assessment.

Endangered Colorado River Fishes and BLM-Sensitive Fishes of the White River

The White River and its 100-year floodplain downstream of Rio Blanco Lake are designated critical habitat for the endangered Colorado pikeminnow. Pike-minnow are currently confined to the White River below Taylor Draw Dam, about 6 river miles downstream of the Red Wash

mouth. The White River in Colorado is not known to support any spawning activity (no larval or young-of-year) and appears to be inhabited strictly by adult and subadult fish. The river also supports a number of sensitive fish, including bluehead sucker, flannelmouth sucker and roundtail chub. Since the closure of Taylor Draw Dam in 1984, the reservoir pool and White River below the dam has shifted from a native-dominated fishery (97 percent, primarily bluehead sucker and speckled dace) to one dominated (90 plus percent) by non-native fish, especially fathead minnows and red shiner. Flannelmouth sucker and roundtail chub continue to comprise 10-20 percent of the fishery, but bluehead suckers are relatively scarce (less than 1 percent).

White-Tailed Prairie Dogs

White-tailed prairie dogs, a BLM-sensitive species, and their burrow systems provide important habitat for several BLM-sensitive species, including burrowing owl, ferruginous hawk, and represents potential habitat for reintroduced populations of black-footed ferret.
White-tailed prairie dog colonies in the lower Red Wash watershed are confined almost exclusively to alluvial bottomlands and are relatively small, isolated, and typically support low animal densities. The lease tract and the area within 1 mile of its perimeter respectively encompass about 130 and 300 acres that show past or current evidence of prairie dog occupation. This acreage is distributed across at least 9 discrete parcels and represents 3-4 percent of those respective landscapes. Typically, 10-20 percent of this acreage is occupied at any given time (Wolf Creek Work Group, 2001). Lower prairie dog densities and town occupancy in Red Wash south of Coal Ridge is likely attributable to habitat quality. The utility of prairie dog habitats composed of relatively tall and dense bottomland sagebrush/greasewood communities is inferior to low stature/low density shrublands, such as those salt desert shrublands found north of Coal Ridge (0.5-1 mile north of lease tract). White-tailed prairie dogs begin their reproductive period by early April and give birth from late April through early May. Pups emerge from natal burrows from early to mid-June at 5-7 weeks of age. Sport shooting of prairie dogs is allowed beginning in mid-June.

Black-Footed Ferret

Under the auspices of a Non-essential, Experimental Population Rule (Federal Register Vol. 63, No. 190, Oct. 1, 1998) black-footed ferrets have been released annually in the Coyote Basin (~13 miles southwest of the Red Wash lease tract) and Wolf Creek (~3.5 miles east of the lease tract) Management Areas from 1999 through 2009. A plague epizootic first recognized in 2010 significantly reduced prairie dog populations in the Wolf Creek Management Area and is believed to have directly or indirectly killed its entire ferret population.

The Experimental Population Rule applies to any ferrets that may occupy or eventually be released in northwest Colorado and northeast Utah. Ferrets are wholly reliant on prairie dogs for food and shelter. Ferret breeding activities begin in early March, with birthing beginning in early May. Young ferrets generally begin to emerge by mid-July. Prairie dog towns within and near the lease tract are considered poorly suited for sustained occupation or reproductive use by black-footed ferret (e.g., isolated, small, low prey abundance). There have been no verified sightings of ferrets, nor any known reproduction occurring within roughly 15 miles of the project area.

Burrowing Owl, Ferruginous Hawk
See the raptor discussion in the Terrestrial Wildlife Section for these BLM-sensitive raptors.

Greater Sage-Grouse
As late as the mid to late-1980s, small numbers of sage-grouse made year-round use of the lower Red Wash drainage, but sage-grouse are now either absent or relegated to sporadic, low-density use during the winter. Nesting, brood-rearing, and general summer and fall use of ranges encompassed by the lease tract was formerly associated with the one or two leks located on Hatch Flat, between 0.8 and 1.7 miles east of the lease boundary. There has been no documented activity at these leks since 1981 (Hatch Flat high male count = 13). Another historic lek (inactive prior to 1977) was located about 2 miles north of the lease along Highway 40, but birds associated with this lek likely remained north of Coal Ridge based on distribution of habitat and geographical barriers. At present, the nearest active sage-grouse lek is more than 12 miles east of the lease tract. Declining bird use and eventual extirpation appears to have been associated with increasing prevalence of cheatgrass in these shrubland understories. Colorado Parks and Wildlife has categorized sage-grouse habitat influenced by mine activities and habitat encompassed in the proposed lease as sage-grouse general habitat (CPW).

Other BLM-Sensitive Animals
There are no known water bodies within the lease tract that are sufficiently persistent (minimum 5 weeks) to serve as reliable habitat for Great Basin spadefoot toad reproduction. There are no habitats potentially influenced by lease development that are suitable for occupation by northern leopard frog.

Three BLM-sensitive bats, including the Townsend's big-eared bat, spotted bat, and fringed myotis, inhabit the general project region. Based on the bats' ability to forage 10 miles or more from roosts and the lack of habitat capable of supporting concentrated prey (e.g., riparian systems), it remains possible that the lease tract may support dispersed and opportunistic foraging activity. With the exception of mature juniper trees or rock outcrops which may provide for transient diurnal roosting for a small number of male or non-reproductive bats during the summer, there is no known structural substrate suitable for hibernacula or maternity roosts within 2-3 miles of the proposed lease tract boundaries.

See the discussion in the Migratory Birds Section for the BLM-sensitive Brewer's sparrow.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects:

Endangered Colorado River Fishes and BLM-Sensitive Fishes Of The White River
Water use attributable to mineral development represents flow depletions from the upper Colorado River system and is an influence that has been determined by the FWS to jeopardize the continued existence of the pikeminnow and three additional downstream species of endangered river fishes. Beginning in 1981, there have been several Section 7 consultations initiated by the Office of Surface Mining and BLM that have addressed water depleting activities associated with the original Moon Lake Power Project (i.e., generation facilities, coal mine, railroad, load-out and conveyor facilities, and electric transmission facilities) and its subsequent modifications. In each case, the Biological Opinions determined that, given the application of

reasonable and prudent conservation measures (i.e., funding contributions to the Recovery Program), water depletions from the Colorado River Basin attributable to the entire mine/power plant system were not likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, or razorback sucker, and that water depletions are not likely to destroy or adversely modify designated critical habitat.

The Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin serves as the reasonable and prudent alternative to avoid jeopardy and provide recovery to the endangered fishes impacted by depletions from the Colorado River Basin. As a means of avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat, the project has provided a one-time contribution to the Recovery Program in the amount equal to the average annual amount of water removed from the White River (Colorado and Utah). The operator's current contribution to the Recovery Program extends to an average annual depletion rate of 512 acre-feet per year (Biological Opinion ES-6-RO-95-F-001-GJ286; 12/01/1999), which in recent practice (2009-2010) has amounted to about 360 acre-feet.

The Proposed Action would involve extending the current operational aspects of mining, coal transport, and power generation with no increased demand for water anticipated over the life of the project. Water use and depletion influences on endangered fish and critical habitat attributable to this operation would not be altered in response to leasing the LBA and depletions would remain within BME's 512 acre-feet per year Recovery Program allowance. Since the estimated depletion would result in no net increase in water use or demand for that addressed under previous consultations (Biological Opinion ES-6-RO-95-F-001-GJ286; 12/01/1999) the FWS (FWS 2012) determined Section 7 consultation is not required for this aspect of the project.

Selenium and mercury are two aquatic contaminants that are associated with the burning and mining of coal and have been implicated in reproductive failures and impaired growth in the endangered Colorado River fishes. It has been suggested that these contaminants contribute to the suite of factors that are impeding recovery of these fish throughout the Colorado River system, specifically including the White River (Hamilton et al. 2005, USFWS 2011).

Selenium occurs naturally in the White River and is believed to be derived primarily from ground and surface waters draining Mancos Shale formations. Highest selenium concentrations, exceeding State-designated impairment levels, are found in tributaries near Meeker (i.e., lower Flag Creek, Sulphur Creek). Selenium levels below Meeker and downstream to the Utah border (8 monitoring stations) have remained relatively constant at or below 1 µg/L since 2003 and are in a declining trend. Hamilton et al. (2005) considered aquatic systems within the Colorado River basin with selenium levels below 1 µg/L uncontaminated.

Mining of these associated coal leases began in 1985 and small amounts of mine water were discharged to sedimentation ponds in the ephemeral Scullion Wash drainage. Discharge was discontinued in 1996. Recent (2010/2011 Deserado mine hydrology report) water quality measurements of spring run-off events in channels subtending these ponds carried selenium levels of 1 and 4 µg/L and are likely background soil-derived values. Similarly, most recent selenium levels measured at an alluvial monitoring well along the White River at the mouth of

Scullion were 2 µg/L. It is anticipated that mining of the proposed lease would require dewatering with discharge to a sedimentation pond tributary to the ephemeral Red Wash drainage. No measurable levels of selenium were detected in ground water samples from an on-lease test well.

Solid and liquid wastes from the Bonanza power plant are treated in a treatment facility that is more than 10 miles from the White River in Utah. There has been no discharge of water from the power plant since 1987. Selenium is not considered to be an issue in the combustion of coal.

Based on the values above, there is no evidence to suggest that current mine operations, mining extension into the proposed lease tract, or power plant operation is contributing or would contribute measurably to selenium concentrations in the White River.

The Environmental Protection Agency has required special design measures to reduce air emissions at the Bonanza power plant to reduce air-borne pollutants, including mercury. Mercury released from coal combustion at the power plant was measured at 2.11 pounds in 2011, a rate (pounds Hg per gigawatt-hour) considered minimal for coal-fired generators and compliant with Clean Air Act standards. Although Colorado pike-minnow with elevated mercury concentrations (2 µg/g muscle plug, wet weight) were found in the White River in 2008, the source of exposure is unclear. Monitoring of mercury levels in the White River has remained at or below 0.1 µg/L since 1979. Measured mercury levels have been in a declining trend since 1993 (power plant began operation in 1985) and have remained essentially zero since 2008. Similar to the discussion regarding selenium, there appears to be no evidence suggesting that past or current power plant operation, using coal from the proposed lease area, is contributing measurably to mercury contamination in the White River.

In summary, development of the proposed coal lease acreage and continued fueling of the power plant with this coal may affect, but is unlikely to adversely affect the endangered Colorado River fishes or adversely influence critical habitat. Based on water quality monitoring data, there are no indications that past, current, or proposed mining operations or ongoing power plant operations have contributed to elevated mercury or selenium levels in the White River. Conversely, since mining and power plant operations began mercury and selenium levels appear to have remained static or declined.

The WRFO is aware of no further resource issues involved with the Proposed Action that could reasonably influence downstream fisheries. The development and reclamation of widely dispersed sub-acre surface facilities that are invariably sited on level terrain would progress at a rate commensurate with their development over the past 30 years. The addition of sediments originating from these diminutive sites would be indiscernible relative to background levels in the Red Wash watershed, and the potential for long term accumulations of sites susceptible to erosion is improbable given that site reclamation with perennial grasses reduces site susceptibility to soil loss (i.e., on sites formerly influenced by invasive annuals).

White-Tailed Prairie Dogs

The Proposed Action would not be expected to have any substantive influence on prairie dogs or their habitat. Based on raw probability, it is unlikely that more than 2-3 acres of habitat would be

considered for surface facility use over a 10-year period. The WRFO routinely relocates surface disturbance to avoid, where practical, the involvement of prairie dog burrow systems and development of proposed surface facilities would generally pose no risk of individual mortality or represent a substantive reduction in availability of functional habitat. It is also unlikely that shallow leveling activities or brief cross-country vehicle use by light trucks and, infrequently, truck-mounted drilling rigs and water trucks on occupied valley terraces would have any meaningful consequence on the integrity of underground burrow systems (Menkens and Anderson 1985). Too, the practical influence of subsidence on burrow system integrity must be considered localized and temporary, since there has been no substantive change in prairie dog distribution overlying mine panels in Red Wash for at least 20 years.

In the absence of timing considerations, brief (less than 1 week), single-point construction and drilling activities would have only localized potential to disrupt reproductive activities sufficient to influence survival or recruitment, much less generalized surface use for foraging. However, due to the elevated status of white-tailed prairie dogs as BLM-sensitive species (comparable to candidates for ESA listing), conditions of approval involving avoidance and activity deferrals (up to 200-meters and 60-days) would be applied to avoid, as much as practical, compromising the integrity of active burrow systems and reproductive activities that involve gestation and dependent young (i.e., April-May).

Black-Footed Ferret

At the present time and for the foreseeable future, there is no reasonable likelihood that ferrets north of Coal Ridge would be attracted to or remain associated with these prairie dog towns and virtually no chance that reproduction could be supported. Consistent with the management criteria and philosophies expressed in the 1998 Final Rule for the establishment of this Non-essential Experimental black-footed ferret population (Federal Register/Volume 63, No. 190: 52824-52841) and Colorado Revised Statute 33-2-105.6, the cooperatively developed 2001 Wolf Creek ferret management plan directs that, outside the ferret management areas, operators would generally be encouraged to conduct newly authorized operations in a manner that reduces the risk of adversely affecting ferrets that may inhabit the area (e.g., minimal timing limitations or facility moves to minimize involvement of prairie dog burrow systems and avoid sensitive reproductive timeframes).

Greater Sage-Grouse

Short term disturbance to approximately 56 acres of sage-grouse general habitat in diminutive, widely dispersed sites is not expected to alter the suitability or utility of sage-grouse habitat in lower Red Wash over the life of the project and would have no residual influence on sage-grouse habitat character once these facility sites are reclaimed.

Cumulative Effects: Leasing and development of the Red Wash Tract would contribute incrementally to those surface uses that occupy and adversely modify habitat suited for prairie dogs and their associates (ferret, burrowing owl, ferruginous hawk), deplete water from the Upper Colorado River system (BLM-sensitive and listed fishes of the White River), and reduce lower-elevation scrub-shrub habitat suited for use by Brewer's sparrow and, ostensibly in the future, greater sage-grouse. However, the contribution of lease tract development in the context of other land uses and processes that are currently prevalent in northwest Colorado and northeast

Utah (e.g., oil and gas development, livestock grazing, vehicle-based recreation and shooting sports, proliferation of invasive annual weeds), and relative to the extent of functional habitat that remains available in the more immediate lower Red Wash and Scullion Gulch watersheds, as discussed in the text above, are immeasurably small and undetectable at any landscape scale and are of no practical consequence to the abundance, distribution, or viability of any special status animal.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: There would be no action authorized that would have potential to further influence populations or habitats of special status species.

Cumulative Effects: The incremental contribution of lease tract development on adverse habitat modifications or behavioral influences at the regional or local scale would not occur. However, considering the project's short-term nature and diminutive surface expression, the consequence of not leasing or developing the Red Wash Tract would, in the case of the Colorado River fishes, black-footed ferret, white-tailed prairie dog, burrowing owl, ferruginous hawk, greater sage-grouse, and Brewer's sparrow, be immeasurably small and practically undetectable at any landscape scale.

Stipulations to be Applied as Mitigation:

1. The WRFO would continue to conduct project-specific prairie dog and raptor surveys as necessary to accommodate the siting of dispersed and small-scale surface activities. RMP-approved timing limitations and no-surface-occupancy provisions would be applied as stipulations or Conditions of Approval to known and subsequently discovered raptor nests (see Terrestrial Wildlife section).
2. Surface use or disturbance that may adversely influence the subsurface integrity of prairie dog burrow systems or disrupt reproductive activities (April 1 through May 31) will be avoided as much as practical. This condition applies to all prairie dog towns, including those currently mapped within the following subdivisions:

   Township 2 North, Range 101 West, Sixth Principal Meridian
   - Section 18: S½NESW, Lot3;
   - Section 21: S½NE, NWSE;
   - Section 22: SWNW, SESE;
   - Section 23: S½SW, SWSE;
   - Section 26: NE, E½NW, NESE;
   - Section 27: NENE, NESW.

Finding on the Public Land Health Standard #4 for Special Status Species:

Leasing of this tract would be expected to extend the existing BME operation for about 10 years. Over that period of time, leasing and development of the Red Wash Tract, as conditioned, would maintain the current rate and extent of surface facilities that are required for mine ventilation. The influences associated with this mine's surface facilities and activities on special status wildlife resources, including listed and BLM-sensitive fishes of the White River, white-tailed prairie dogs, black-footed ferret, burrowing owl, ferruginous hawk, and Brewer's sparrow have remained localized and discountable over the past 30 years and there is no information to suggest that the overall effect of the Proposed Action on the abundance or distribution of these species

would differ from past effects. As such, the Proposed Action would be consistent with continued meeting of the land health standard for special status animals. Due to the temporary nature and diminutive extent of impacts associated with the Proposed Action, the No-Action Alternative would also provide for continued meeting, but would have no measurable effect on elevating the condition or status of land health considerations.

SPECIAL STATUS PLANT SPECIES

Affected Environment:

The BLM-sensitive species debris milkvetch (*Astragalus detritalis*) has the potential to occur in the project area. Debris milkvetch is known to occur on alluvial terraces with cobbles in pinyon-juniper and mixed desert shrub habitats (5,400-7,200 ft.). Known populations are approximately 1-1.5 miles to the east of the project area and are found on Turley fine sandy loam, Torriorthent-rock outcrop, and rock outcrops, all of which are also found in the project area. No other BLM-sensitive or federally listed species or habitats are known in the project area. The 1997 WRFO RMP/ROD identifies the need to provide for the conservation, protection, and management of unique pant communities and includes a no surface occupancy (NSO) stipulation for known and potential BLM sensitive plants.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Debris milk vetch populations have the potential to be found near a surface drilling location of boreholes for gob degas, nitrogen injection, and mine ventilation shafts. Direct debris milkvetch habitat loss may occur if the surface disturbing activity removes the soil types the species are found to occur on. The surface disturbance may also remove or impact pollinator species or their associated habitat.

Cumulative Effects: Ground disturbance may create an opportunity for invasive species to establish and threaten special status plant species habitat. To avoid listing under the Endangered Species Act on this species and to ensure the persistence of these species, it is important to reduce invasions of non-native and exotic plant species.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under this alternative the Proposed Action would not occur and therefore there would be no impacts to special status plant species.

Cumulative Effects: Under this alternative the Proposed Action would not occur and therefore there would be no additional impacts to special status plant species.

Stipulations to be Applied as Mitigation:

1. Prior to any surface disturbing activity, all areas of disturbance shall be surveyed accordance with the WRFO special status plant species survey protocol.
2. Surface occupancy is not allowed within known populations of BLM sensitive plants (RMP NSO-09 exception would apply).
3. If no exceptions are granted to the NSO, a buffer of up to 100 meters, in addition to the NSO, would be implemented for BLM special status plant species.

Finding on the Public Land Health Standard #4 for Special Status Species:

By following the mitigation measures, the Proposed and No-Action Alternatives are not expected to affect populations or habitats of plants associated with the Endangered Species Act or BLM-sensitive species and, as such, should have no influence on the status of applicable Land Health Standards.

MIGRATORY BIRDS

Affected Environment:

Approximately 30 percent of the lease tract is composed of a complex interspersion of Utah juniper ridgelines and big sagebrush/greasewood valleys. The remaining 70 percent of the lease tract is composed of rolling Wyoming and basin big sagebrush and greasewood shrublands intersected regularly by deeply incised ephemeral drainages. Consistent with the vegetation communities comprising the lease tract, migratory birds nesting on the lease tract are associated with lower elevation juniper-dominated woodlands and arid big sagebrush shrublands. Avian communities in these habitats are broadly represented by species that possess special status (BLM-sensitive species list) or merit heightened attention (FWS Birds of Conservation Concern) (see following Table 13).

Table 13. Special Status Birds Nesting In Or Near Coal Lease Tract

	FWS BCC[1]	BLM Sensitive	Colorado Threatened	ESA[3]-listed
Brewer's sparrow	X	X		
ferruginous hawk	X	X		
burrowing owl	X	X	X	
gray vireo	X			
pinyon jay	X			
juniper titmouse	X			
greater sage-grouse[2]		X		candidate
golden eagle	X			

[1]Bird Conservation Region 16 (Southern Rockies/Colorado Plateau)
[2] historic
[3]Endangered Species Act

Brewer's sparrow, a BLM-sensitive species, is common throughout the lease tract wherever sagebrush habitat exists. This species typically returns in late-April and May and begins nesting in earnest by late May. Young are fledged by mid to late July. Although local bird abundance has not been established, based on ongoing breeding bird surveys (point-count method), these birds nest at densities no less than 1 pair per 10 acres. Pinyon jay flocks wander widely across these lower elevation woodlands, but no nesting colonies have ever been identified. These birds nest very early in the spring (March and April) and birds that experience nest failures respond with aggressive and persistent renesting attempts. Juniper titmice are widely distributed at low densities across woodlands that offer suitable cavity sites. Typically early nesters (beginning in May), these birds are thought to nest at densities of about 1 pair per 40 acres of juniper-dominated woodland. Gray vireo are relatively localized in the WRFO and are best associated with low elevation (<6,300 feet) juniper woodland-black sagebrush communities. Although occupation of woodland stands north of the White River is more sporadic, it is probable that the lease tract supports one to three dozen pairs of vireo.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: As proposed, construction and drilling activities are scheduled to take place during the late summer and fall months and would not typically coincide with migratory bird nesting activities.

In the event drilling activities were to extend into the nesting season there would be worst-case potential to clear shrubland nest habitat at the rate of about 7 acres per year (failing an average of 2-3 nesting attempts per year) and temporarily disturb nest activity across an additional 140 acres of nest habitat adjacent to disturbance (average of 14 acres for 3-7 days at any given time). Indirect disturbance of nest habitat in close proximity to infrastructure would be capable of failing attempts (e.g., average of 5 acres per site with potential failure of 15-20 attempts per year) or, depending on circumstances, result in occasional nest failure where brief disruptions occur out to 300 feet from activity (e.g., prolonged absence of adults during inclement weather). This influence may extend to an average of 9 additional acres per site, with potential failure of up to 10 nests per year. Although many of the species encountered during these activities would be generalists such as western meadowlark, blue-gray gnatcatcher, chipping, lark, and vesper sparrows, due to the prevalence of, particularly, Brewer's sparrows in these shrublands, birds of higher conservation concern may comprise 30-50 percent of affected nests (worst case, about 12 per year). Worst case effects, though unlikely, would have no measurable influence on the abundance or distribution of breeding populations of migratory bird even at the smallest landscape scale.

Dispersed, small-scale habitat modifications represented by reclaimed areas cleared of shrubs and occasional, brief monitoring activity would have little, if any, subsequent influence on the pre-development distribution, abundance, or productivity of migratory birds inhabiting the individual facility locales.

Cumulative Effects: Leasing and development of the Red Wash Tract would contribute incrementally to those surface uses that occupy and adversely modify lower elevation shrubland and woodland habitat suited for nesting use by migratory birds, particularly those species that are considered BLM-sensitive or are FWS Birds of Conservation Concern. However, and as conditioned, the contribution of lease tract development in the context of other land uses and processes that are currently prevalent in northwest Colorado and northeast Utah (e.g., oil and gas development, livestock grazing, vehicle-based recreation, proliferation of invasive annual weeds), and relative to the extent of functional habitat that remains available in the more immediate lower White River valley (ferruginous hawk, burrowing owl, gray vireo) and more expansive woodlands of northwest Colorado (titmouse, jay), are immeasurably small and undetectable at any landscape scale and are of no practical consequence to the abundance, distribution, or viability of any population of migratory bird.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: There would be no use authorized that would have potential to exert direct or indirect impacts on migratory birds or associated habitats.

Cumulative Effects: The incremental contribution of lease tract development to adverse habitat modifications or behavioral nesting-season influences at the regional or local scale would

not occur. However, considering the project's short-term nature and diminutive involvement of low elevation shrubland (3-4 acres per year) and woodland (less than 2 acres per year) habitats, the consequence of not leasing or developing the Red Wash Tract on the abundance, distribution, or viability of any breeding migratory bird would be immeasurably small and practically undetectable at any landscape scale.

Stipulations to be Applied as Mitigation:

Surface disturbing activities required for the development of surface features associated with lease development would be required to avoid, to the extent practicable, the core migratory bird nesting season (i.e., 15 May to 15 July).

TERRESTRIAL WILDLIFE

Affected Environment:

Big Game

The project area is encompassed by Game Management Unit (GMU) 10, which in the case of both deer and elk, is a single-GMU Data Analysis Unit (DAU). A DAU is the geographic area that represents the year-round range of a particular big game herd and the basis for herd population objectives established by Colorado Parks and Wildlife (CPW).

The entire lease tract is encompassed by deer and elk winter ranges that serve as severe winter range to both species (i.e., support 90 percent or more of the local population during the worst 2 winters of 10) and, in the case of deer, are designated winter concentration areas (support at least twice the animal density of surrounding ranges). Small numbers of pronghorn are also present on the lease tract throughout the year.

The lease tract is roughly configured as a narrow (0.5 to 2 mile) margin around the northern perimeter of existing coal mine operations. Coal mine infrastructure that presently exists within the proposed lease tract includes: a 109-acre coal refuse disposal area, 2 miles of improved haul road, 1.4 miles of railroad, an 11-acre railroad load-out, and 0.75 mile of all-weather vehicular access road to the loadout, and 1.3 miles of coal conveyor and its accompanying maintenance road. The tract is traversed by RBC 65 on the west and RBC 73 on its southeast corner. Overall road density in the lease tract, including unimproved roads and tracks, is about 3.5 miles per square mile.

Raptors

The lease tract is known to have supported nesting activities of several raptors, including: ferruginous hawk (three nest sites), burrowing owl (one likely nest site), and red-tailed hawk (one site). Nest sites of an additional seven ferruginous hawks, two red-tailed hawks, and one burrowing owl have been recorded within a mile of the lease tract boundaries. Although not known to nest within the boundaries of the lease tract, golden eagle, prairie falcon, northern harrier, and long-eared owl also use the lease tract as foraging habitat during the nest season.

The WRFO has been unable to document ferruginous hawk use of those nest sites within the lease tract over the last two years. Ferruginous hawk reproductive activity is strongly correlated with the abundance and availability of favored prey (i.e., prairie dog, cottontail rabbit) and low occupancy rates may be associated with recent bouts of sylvatic plague along the Highway 40

corridor. WRFO nest records indicate that these territories have historically low rates of nest occupancy (less than 15 percent) and low nest success rates (about 7 percent). Adults return in February and begin nesting in early April. Young are generally fledged by mid-July.

The lease tract's limited support of burrowing owl nest activity is associated with those prairie dog towns in and near the lease tract. Most recently, from late April through mid-May, a single bird was noted in 2006 along the Staley Mine Road (burn on western end of lease) and a single bird and pair of birds (failed nest attempt) were documented in 2006 and 2009, respectively, off the southeast corner of the lease tract. Burrowing owl nesting activity is closely associated with the availability of intact prairie dog burrow systems. The utility of prairie dog burrows for owl nesting may be largely lost within three years of burrow inactivity. Occupancy rates and nest densities of burrowing owl tend to be positively correlated with the density of active prairie dog burrows (Klute et al., 2003).

Small Mammals

Small mammal populations are poorly documented however, recent BLM and CPW surveys found essentially all shrub-steppe communities in the WRFO are dominated by deer mouse and least chipmunk. Region-specific species that are likely to occur in this area (e.g., Merriam's shrew, sagebrush vole, rock squirrel, northern grasshopper mouse) are less common, but display broad ecological tolerance and are widely distributed throughout the region. No narrowly distributed or highly specialized species or subspecific populations are known to inhabit this area.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects:

The existing infrastructure associated with the mine has not been implicated in serious or noteworthy influences on terrestrial wildlife populations or habitat in GMU 10. The development of infrastructure attributable to the proposed lease tract addition would remain consistent with the long-established rate, intensity, and distribution of disturbances attributable to the mine's operation, and in particular, its subsurface ventilation system.

Based on 2009 aerial photography, the long-term accumulation of surface facilities attributable to adjoining lease development was considered representative of those surface facilities that may eventually be constructed on the proposed lease tract. Collective surface disturbance associated with ventilation facilities on the proposed lease tract would amount to about 1.8 percent of the land base (e.g., about 24 acres attributable to access and 32 acres cleared for pads) over the life of the lease. This acreage figure does not account for the staggered development or progressive reclamation of these sites with perennial bunchgrasses and forbs. At the present time, much of the lower Red Wash watershed, and especially its alluvial bottomlands, are represented by ground cover dominated or heavily influenced by invasive annual weeds, primarily cheatgrass, which fail to provide effective wildlife-related forage or cover. After reclamation of these disturbances, vegetation would be expected to be comparable to or superior to pre-disturbance ground cover in terms of forage value and ground cover. Although elevating the ecological status of the existing plant community represents an incremental benefit to virtually all forms of terrestrial wildlife, including small mammals, as forage or cover, the overall contribution to improving community trends would be negligible.

Big Game
The Proposed Action would account for a cumulative development density of about 14-15 surface facilities and about 2.6 total miles of access road per square mile over the life of the lease. Because of staggered development (about 7 surface facilities per year) and progressive reclamation of these facilities over the life of the lease, it is estimated that the facility access system would, at any given time, increase the density of unimproved tracks to the existing road and trail network of about 3.5 miles per square mile by about 25 percent (primarily seldom used two-tracks). In practice, facilities of this nature have typically been sited to take advantage of the existing road and trail network (about one-third). On level terrain (e.g., drainage bottoms and ridgelines), equipment travels cross-country with little, if any, blade-work and, in the absence of further recreation, use eventually leaves little evidence of a vehicle track. Due in large part to limited license availability for big game in GMU 10, and past success in obliterating these tracks, temporary increases in the availability of short spurs off the existing network of unimproved vehicle tracks in lower Red Wash is considered discountable as an additive source of harassment or indirect habitat loss (e.g., avoidance-induced disuse, elevated energetic demands).

Construction and drilling activity at each site would be brief (4-7 days). In most years, installation of these facilities takes place in the late summer or fall months—timeframes that have the least potential to interfere with animal distribution or contribute to extraneous energy demands during more sensitive periods involving late gestation, lactation, or severe winter weather conditions.

Raptors
Because surface use in close proximity to raptor nesting activity is capable of failing nest attempts or reducing the number of nestlings that successfully fledge from that attempt, WRFO routinely applies no-surface-occupancy stipulations (no surface use within 1/8 to 1/4 mile) and timing limitations (activity deferrals within 1/4 to 1 mile) as buffers around functional nest sites. The variance in buffer size reflects management status and susceptibility of each species to disturbance. These stipulations would be applied to known nest site within the lease, however, it is recognized that nest sites, particularly tree and ground sites, are not static and once the site becomes abandoned the stipulations may offer little utility. In instances where nest locations shift or new nest territories are discovered, the WRFO applies Conditions of Approval on a project-specific basis that effectively mimic these lease stipulations. It is anticipated that WRFO wildlife staff would continue to perform raptor nest surveys for surface facilities associated with the advance of BME's underground mine panels, but under BLM budgetary or manpower constraints, BME may be responsible for the conduct of surveys through the use of qualified biological consultants using the most current WRFO raptor survey protocols.

Cumulative Effects: Leasing and development of the Red Wash Tract would contribute incrementally to those surface uses that physically or behaviorally detract from the utility of habitat for resident wildlife, particularly big game winter range and raptor nest and foraging habitat. As the Proposed Action is conditioned (timing limitations, reclamation), the contribution of lease tract development in the context of other land uses and processes that are currently prevalent in GMU 10 (e.g., oil and gas development, livestock grazing, vehicle-based recreation, proliferation of invasive annual weeds), and relative to the extent of functional habitat that

remains available in GMU 10, is relatively inconsequential to the continued support of big game populations and raptor nesting functions.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: There would be no use authorized that would have potential to influence wildlife populations or habitat.

Cumulative Effects: The incremental contribution of lease tract development to temporary and small scale reductions in forage or cover and habitat disuse associated with avoidance of activity would not occur.

Stipulations to be Applied as Mitigation:

1. The entire lease tract is subject to big game severe winter range timing limitations. No development activity is allowed from December 1 through April 30 (RMP exceptions and modifications apply TL-08).
2. A raptor survey will be required of activities (construction, drilling etc.) that are scheduled to take place during the raptor nesting season (generally February 1 – August 15) in those areas determined by WRFO to be subject to potential project-related disturbances. In the event an active nest is located in the course of survey, timing limitations and no-surface-occupancy provisions, consistent with RMP-approved raptor protection stipulations, would be applied to the authorization as Conditions of Approval.
3. Surface occupancy is not allowed within 200 meters (burrowing owl, red-tailed hawk) and 0.25 mile (ferruginous hawk) of identified raptor nests (RMP NSO-02 and NSO-03 exception and modification criteria apply). This no-surface-occupancy stipulation applies to the following legal subdivisions:

   Township 2 North, Range 101 West, Sixth Principal Meridian
   - Section 17: S½SESW;
   - Section 18: SESW, SWSE;
   - Section 19: NWNE, S½NE, NENW, N½NWSE;
   - Section 20: W½NE, N½NENW;
   - Section 21: NWSE;
   - Section 27: E½SW, W½SE.

4 No development activities are allowed within 0.25 (burrowing owl, red-tailed hawk) and 1 mile (ferruginous hawk) of special status raptor nests from February 1 through August 15 or until fledging and dispersal of young (RMP TL-3 and TL-04 exception and modification criteria apply). This timing limitation applies to the following lands:

   Township 2 North, Range 101 West, Sixth Principal Meridian
   - Section 17: SWSW;
   - Section 18: S½NESW, S½N½SE, SESE, Lot 4, Lot3;
   - Section 19: NENE, N½SENW, Lot 1;
   - Section 20: E½NE, N½NWNW;
   - Section 21: SWNE, S½NW, NESE;
   - Section 23: SESE;
   - Section 26: E½NE, NESE;
   - Section 27: S½NE, SENW, SWSW, E½SE

Section 34: N½N½.

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:

Although on a greater landscape scale, the project area continues to provide a functional habitat base for terrestrial wildlife, there is considerable acreage within the lease tract where invasive annual weeds are prevalent and detract from meeting the health standards on a local basis. There is no information to suggest that these conditions result from or are aggravated by the BME operation. The Proposed Action represents a continuation of low-intensity activity and small-scale habitat modification that have been ongoing for three decades. The proposed leasing and development of the Red Wash Tract would involve the installation and reclamation of surface facilities that, as conditioned, would have no measurable short or long-term consequence on the abundance or distribution of any species or the availability or utility of associated habitat. As such, the Proposed Action would be conducted in a manner that would continue to meet pertinent aspects of the land health standards. The No-Action Alternative would be consistent with the land health standards in the same manner.

CULTURAL RESOURCES

Affected Environment:

Human use of the WRFO has occurred for at least 11,000 years, including manifestations of Paleoindian big-game hunting peoples; Archaic hunter/gatherer groups; Fremont horticulturalists/foragers; historic Ute tribes; Euroamerican and other modern peoples.

The entire proposed lease area has been covered by recent Class III, intensive pedestrian surveys (Conner and Davenport 2012, Conner, Davenport, and Kramer 2012, Conner, Higginson, Davenport, and Darnell 2012). These surveys have recorded 12 eligible, 2 potentially eligible, and 23 not eligible sites within the proposed lease area. Of the sites recorded there is a much greater number of pre historic and/or protohistoric sites (35) in comparison to historic sites (8). Prehistoric and/or protohistoric sites include open lithic sites, open camps, and sheltered camps. Diagnostics artifacts recorded at these sites include obsidian sourced from Idaho, Wyoming, and Utah, Archaic era projectile points, Fremont ceramics, and Ute ceramics and projectile points. No Traditional Cultural Properties have been identified in or near the proposed lease area.

The majority of the sites in the project area are indicative of Ute cultural affiliation. Larger prehistoric sites were interpreted as residential bases in areas where they could procure seasonally abundant resources like pinyon nuts and upland game. The smaller sites were interpreted as short term camps along a trail route that likely ran through the project area.

BME currently operates the Deserado Mine, an underground coal mine east of Rangely Colorado, in the WRFO. If the LBA is offered for sale and BME is the successful bidder, BME could add an adjacent lease on to the north end of the current mine operations. The Lease by Application does not authorize any new construction or surface disturbance, therefore it has no potential to effect historic properties, but it gives the lessor rights to the underground coal. A mine plan revision would be required to add the COC74813 lease, a 3,154.76 acres area, to the

current mine plan. Any future proposed surface disturbances associated with this lease would be analyzed and approved by OSM.

Thirteen historic properties recommended for protection and preservation have been recorded in the lease area, and are required to be avoided by all surface disturbing activities. The historic properties are: 5RB1020, 5RB1029, 5RB1160, 5RB1175, 5RB6754, 5RB7286, 5RB7287, 5RB7289, 5RB7291, 5RB7296, 5RB7304, 5RB7305, 5RB7307, and 5MF7622. The unsuitability criteria #7 applies to each of these thirteen sites that are potentially eligible for the National Register of Historic Places.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Effects that are possible to happen to archaeological sites include outright destruction of sites, artifacts, and features caused by ground disturbance. There can be increased natural processes like erosion that stem from these ground disturbances. Associated route construction will result in increased public access to areas where cultural resources are present, if they are not gated off, causing increases in unauthorized collection and vandalism. Additionally impacts to cultural resources can result from actions that alter characteristics of the surrounding environment that contribute to resource significance; introduce visual or audible elements out of character with the property; alter its setting; and fragment the landscape in which sites are part of.

The Deserado Mine has done studies on subsidence at the mine, but no documented studies of its effect to cultural resources can be located by the WRFO. Their mine plan includes their maximum predicted subsidence from longwall mining there is 7.7 feet, and room and pillar mining is 0.5 feet, as well as the subsidence control plan that they use. In 1987 and 1988 they monitored the subsidence that occurred over their first longwall panel with analytical photogrammetry. Their subsidence study found that the predictions had been conservative, and that the subsidence was less than expected and at the maximum subsidence was 5.14 feet at their test point that had the least overburden (Stinson 1988). Depth increases as the mine progresses to the north, and where depth increases subsidence decreases (Deserado Mine 2011). Studies of subsidence effects to cultural sites were not to be conducted as:

> "DMG *(Colorado Division of Minerals and Geology)* and OSM *(Office of Surface Mining)* have determined that the best mitigation for archaeological sites subject to potential subsidence was to limit access to the area and limit access to the location information. It was determined that subsidence itself did not produce a detrimental impact to the cultural resources. Subsidence is expected to produce no long term impacts on these sites. (Deserado Mine 2011)"

However, as generally accepted knowledge in the archaeological community, underground coal mining and subsequent subsidence can cause surface disruption and direct impacts to both known and unidentified cultural resources. Sites most sensitive to the effects of subsidence include rock shelter and rock art sites located on or beneath rock outcrops. A recent, local example is the collapse and destruction of the eligible Red Army Rockshelter site (5RT345) in the Little Snake Field Office (LSFO) area, after subsidence of an underground coal mine occurred (per conversation with LSFO Archaeologist Ethan Morton). Standing prehistoric and

historic structures also have potential to be impacted by any differential settling associated with subsidence.

> "Site types not sensitive to the effects of subsidence would include surface and shallowly buried historic and prehistoric sites located in open terrain away from drainage channels and floodplains. Sites where the effects of subsidence have not been adequately documented include buried and/or stratified archaeological sites, and sites located in proximity to streams whose gradients and courses might be slightly altered by subsidence and a resulting change in erosion patterns. Changes in the floodplain hold little potential for disturbance simply because those sediments are so recent. The areas of concern, however, are the terraces and benches that parallel the floodplain which may be impacted by lateral channel migration and increased erosion in situations where those surfaces see a relative increase in height above the floodplain. (Elkins and O'Brien 2011:15)"

During tribal consultation for this project Betsy Chapoose, the NAGPRA Representative of the Ute Tribe of the Uintah and Ouray Reservation, replied that she has concerns with subsidence, and would like the BLM to be mindfull of any possible subsidence effect to shelter or rock art sites near the mine work.

As depth increases as the mine progresses to the north, which is where the current lease proposal is, the increase in depth will decrease the amount of subsidence possible from what had been recorded before. The entire proposed lease area has now been surveyed but no standing prehistoric or historic structures occur within the area. No rock art sites have been recorded within the proposed lease sale area either. The majority of the sites in the project area consist of open lithic and open campsites which should be impacted the least from possible subsidence effects.

Cumulative Effects: Potential changes of drainage, as well as subsidence, and increased development and access, on top of other uses of the area (found in Table 1 above) would incrementally add to the general erosion in the area, increase unauthorized collection of cultural artifacts, and possibly add visual and auditory intrusions to the landscape.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: There would be no associated direct or indirect impacts to cultural resources under the No Action Alternative.

Cumulative Effects: The incremental contribution of lease tract development to erosion and human impacts such as theft and destruction would not occur.

Stipulations to be Applied as Mitigation:

1. This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O.13007, or other statutes and executive orders. A cultural resource survey of the lease area is required to determine if any of the above mentioned historic properties and/or resources are contained within the lease. The BLM will not approve any ground disturbing activities

that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

2. The holder is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.
3. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the AO. The holder will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The holder, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.
4. Pursuant to 43 CFR 10.4(g), the holder must notify the AO, by telephone and 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), the holder must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
5. Thirteen historic properties (5RB1020, 5RB1029, 5RB1160, 5RB1175, 5RB6754, 5RB7286, 5RB7287, 5RB7289, 5RB7291, 5RB7296, 5RB7304, 5RB7305, 5RB7307, and 5MF7622) are required to be avoided by all surface disturbing activities.

PALEONTOLOGICAL RESOURCES

Affected Environment:

The large number of productive fossil-bearing geological landforms found on federal land in the American West has encouraged the BLM to provide guidance on protecting this resource. Two instruction memoranda (IM) have been issued by the BLM to provide guidelines on implementing a Potential Fossil Yield Classification (PFYC) system for paleontological resources on public lands (IM2008-009) and for assessing potential impacts on paleontological resources (IM2009-011). Under the PFYC system, geologic units are classified from Class 1 to Class 5 based on the relative abundance of vertebrate fossils or uncommon invertebrate or plant fossils and their sensitivity to adverse impacts. A higher classification number indicates a higher fossil yield potential and greater sensitivity to adverse impacts.

The entire coal lease application area lies in the Upper part of the Mesaverde Group or Formation, a PFYC 5 formation (Garrigues, R.S. and Barnum, B.E., 1980). In PFYC 5 formations the potential for impacting significant fossils is high. Vertebrate fossils or uncommon invertebrate or plant fossils are known or can be expected to occur. Fossils recorded in the Upper part of the Mesaverde Group or Formation include dinosaurs, reptiles (turtles & crocodilians), mammals, fish, ichnological traces, snails, plants, and coal beds.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed lease should have no negative impacts to significant fossil resources. The Proposed Action involves no ground disturbance, besides possible subsidence effects. Subsidence would have no effects to fossil resources different from the geologic uplift that would have caused the fossils to rise to the surface (per conversation with WRFO Paleontology Coordinator, Michael Selle).

Cumulative Effects: This proposal on top of other uses of the area (found in Table 1 above) could incrementally add to the general erosion in the area, which could cause exposure of fossil resources. Increased human activity in the area could, potentially, result in some unauthorized collection of exposed fossil resources due to the increased accessibility of the area.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: There would be no associated direct or indirect impacts to fossil resources under the No Action Alternative.

Cumulative Effects: The incremental contribution of lease tract development to erosion and human impacts such as theft and destruction would not occur.

Stipulations to be Applied as Mitigation:

1. The holder is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands.
2. Any excavations into the underlying native sedimentary stone must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.
3. If any paleontological resources are discovered as a result of operations under this authorization, the operator/holder or any of his agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology

Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

VISUAL RESOURCES

Affected Environment:

The Proposed Action is located within a Visual Resource Management (VRM) Class III area. The objective of the VRM Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape could be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Due to the nature of the Proposed Action, vegetation would be disturbed or removed from the drill locations, new access roads, and any other disturbed surface areas. The contrast between the disturbed surfaces and the surrounding vegetation is likely to attract the attention of casual observers on the surrounding road network, however these are anticipated to be low. Any structures built on the landscape would present a sharp contrast in form, line, color, and texture in relation to the surrounding landscape. Post-drilling, all disturbed areas, including access roads constructed for drill sites, would be reclaimed. Once the disturbed areas are reclaimed/revegetated, the level of change to the landscape would be low, thus the objectives of the VRM III classification would be retained.

Cumulative Effects: Combined with other on-going surface disturbing activities in the area, such as oil and gas development, the Proposed Action can be expected to cumulatively contribute to a visually impacted landscape.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under this alternative, the Proposed Action would not occur, therefore there would be no activities that would be in contrast with the surrounding area and no undue attention will be drawn by the casual observer.

Cumulative Effects: None have been identified.

Stipulations to be Applied as Mitigation:

1. All above ground facilities shall be painted with a color from the BLM Standard Environmental Color Chart June 2004, to blend in with the surrounding environment. Facilities shall be painted within 6 months of installation and be regularly maintained.
2. All disturbed areas will be contoured to blend with the natural topography. Blending is defined as reducing form, line, shape, and color contrast with the disturbing activity.

HAZARDOUS OR SOLID WASTES

Affected Environment

There are no known hazardous wastes sites within the LBA. The LBA would encompass BME's permitted coal slot storage, rail load-out, refuse disposal area, and portions of overland conveyor. Once the lease area is in production, petroleum products and solvents would be used as part of general operations. Use of these products would comply with all applicable state and federal regulations, as described in this section.

Disposal requirements for waste rock/ore derived from coal mining operations are based on whether the waste material is determined to be acid-forming and/or toxic-forming. If the material is determined to be non-acid-forming or non-toxic-forming, there are generally no restrictions on disposal. The material may be stockpiled within the permit area or disposed of per the State of Colorado's Disposal of Excess Spoil, Coal Mine Waste Bank, or Coal Mine Waste Regulations (2 CCR 407-2.2.04.09 – 407-2.2.04.11). Acid-forming and toxic-forming waste material must be disposed of in accordance with 2 CCR 407-2.4.05.8 (Acid-forming and Toxic-forming Spoil), 2 CCR 407-2.4.10.1 (Coal Mine Waste Banks General Requirements), and 2 CCR 407-2.4.14.3.

Coal refuse material (non-specification coal) and incombustible waste rock generated at the Deserado Mine would be transported to the surface by conveyor, segregated, and transported to Deserado Mine's approved refuse disposal area for permanent placement. Based on sampling and analysis of the geologic materials associated with the B-Seam, associated strata within, above, and below the coal seam have little or no potential to generate acid or toxic-forming refuse materials.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Potential sources of hazardous or solid waste materials in the project area would include spilling, leaking, or dumping of hazardous substances, petroleum products, and/or solid waste associated with coal development or livestock activities. Impacts to the environment resulting from the release of hazardous or solid waste are not expected. The potential for impacts resulting from substance release would depend upon the responsible use of chemicals, and the immediate containment and adequate clean-up in the event of unintentional releases. The potential for exposure to hazardous or solid wastes would be low and short-term during drilling activities. Spill kits would be located onsite, which would be used in the case of an accidental spill in order to assist in rapid clean-up. Additionally, appropriate secondary containment would be utilized for all hazardous chemicals. Approximately six million tons of waste rock could be generated from B-Seam coal mining and processing over the life of the LBA and would be hauled to Deserado Mine approved refuse disposal area.

Hazardous wastes produced by current mining activities at the Deserado Mine are handled in compliance with regulations promulgated under the Resource Conservation and Recovery Act, Federal Water Pollution Control Act (Clean Water Act), Safe Drinking Water Act, Toxic Substances Control Act, Mine Safety and Health Act, Department of Transportation, and the Clean Air Act (CAA). Mining operations must also comply with all state rules and regulations relating to hazardous material reporting, transportation, management, and disposal.

Cumulative Effects: The addition of six million tons of waste rock generated from the Deserado Mine would require approximately 2,800 acre feet of refuse volume. This, in addition to approximately 4,800 acre feet of previously used refuse capacity, would result in usage of approximately 63 percent of the 12,000 plus acre feet refuse disposal volume identified in BME's approved mine plan.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would be no impacts associated with hazardous or solid wastes associated with the LBA.

Cumulative Effects: The total amount of waste rock generated and shipped to Deserado's approved refuse disposal area would be reduced by approximately six million tons.

Stipulations to be Applied as Mitigation:

1. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

SOCIAL AND ECONOMIC CONDITIONS

Affected Environment:

The Deserado Mine is located approximately 7 miles East of Rangely, Colorado with a majority of the social and economic effects of the Proposed Action and associated mining activities occurring in Rio Blanco County of northwest Colorado and Uinta County of northeast Utah. Communities of Rangely, Colorado (2010 population 2,365) and Vernal, Utah (2010 population 9,089) provide the majority of the workforce for the Deserado Mine as well as providing mining services, retail, business and consumer services in the area. Rio Blanco County comprises 3,220 square miles and Uintah County comprises 4,480 square miles with 2010 populations of 6,666 and 32,588 respectively.

Table 14 presents basic population and demographic information for Colorado, Utah, Rio Blanco County, Colorado and Uintah County, Utah.

Table 14. Population by Category, 2000 and 2010, Rio Blanco County, Colorado and Uintah County, Utah

Population	Rio Blanco County	Colorado	Uinta County	Utah
2000-2010 % Change	+11.4%	+16.9%	+29.2%	23.8%
Male (2010)	51.5%	50.1%	50.8%	50.2%
Female (2010)	48.5%	49.9%	49.2%	49.8%
Under 5 years	7.4%	6.8%	10.6%	9.5%
Under 18 years	24.3%	24.4%	33.3%	31.5%
65 years and over	12.4%	10.9%	9.2%	9.0%

Population	Rio Blanco County	Colorado	Uinta County	Utah
% Minority (2010)	13.7%	30%	17.2%	9.6%
% Below poverty (2010)	5.3%	12.2%	11.7%	10.8%
Housing Vacancy Rate	18.3%	11.8%	6.3%	9.8%

Source: US Census Bureau

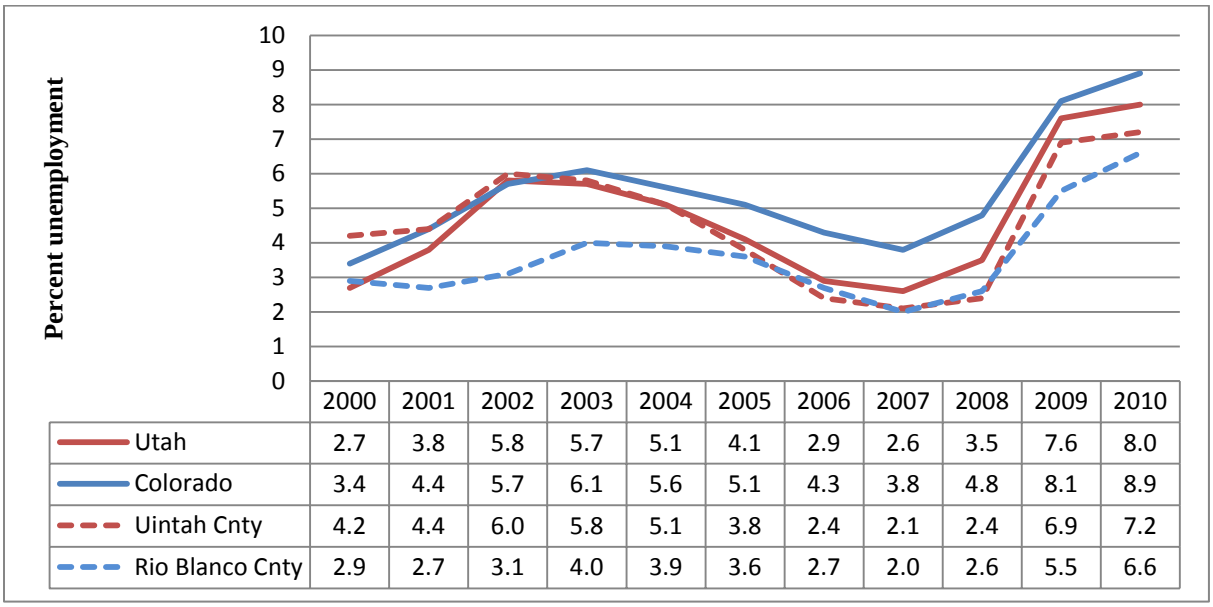
Table 15. Population density of people per square mile in the states of Colorado and Utah and counties of Rio Blanco and Uintah.

	People per Square Mile
Rio Blanco County	2.1
Colorado	48.5
Uintah County	7.3
Utah	33.6

Source: US Census Bureau

The national unemployment rate has hovered between nine and ten percent in recent years. Both of the states and counties have lower unemployment rates than the nation and have experienced the same trend of increasing unemployment since 2009. Chart 1 shows unemployment trends for the states and counties during the past decade.

Chart 1.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Utah	2.7	3.8	5.8	5.7	5.1	4.1	2.9	2.6	3.5	7.6	8.0
Colorado	3.4	4.4	5.7	6.1	5.6	5.1	4.3	3.8	4.8	8.1	8.9
Uintah Cnty	4.2	4.4	6.0	5.8	5.1	3.8	2.4	2.1	2.4	6.9	7.2
Rio Blanco Cnty	2.9	2.7	3.1	4.0	3.9	3.6	2.7	2.0	2.6	5.5	6.6

Source: US Census Bureau

As of spring 2012, the Deserado Mine employed approximately 164 full employees, with an annual payroll of approximately $23.7 million. Table 16 shows the distribution of the employees by state and county.

Table 16 BME Employee Distribution

Colorado	
County	Number of Employees
Mesa	5
Moffat	15
Rio Blanco	77
County Total	97
Utah	
Carbon	4
Emery	4
Uintah	59
County Total	67
BME Total Employees	164

In 2011 BME spent an additional $30.1 million for materials, supplies, services and $5.7 million for fees, royalty, and tax payments, totaling approximately $59.5 million of direct economic benefits associated with BME's Deserado Mine. The majority of these costs remain in the region, helping to increase, through indirect and induced effects, other forms of employment.

The mine currently produces approximately 2 million tons of coal per year. The Deserado Mine is considered a captive mine since all coal produced is sold and shipped to its sole customer, the Bonanza Power Plant. The average coal price from Colorado mines is $40/ton (US Energy Information Administration). Therefore the mine can be said to have revenues of approximately $80 million.

Identification of Minority and Low Income Populations

Executive Order (E.O.) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was issued in 1994. It requires Federal agencies to identify and address disproportionately high impacts to minority and low-income populations with the goal of achieving environmental protection for all communities. 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. As defined by the Office of Management and Budget and updated for inflation using the Consumer Price Index, the weighted average poverty threshold for a family of four in 2010 was $22,314 and $11,139 for an unrelated individual (census bureau 2011).

Estimates of these two populations were then developed to determine if environmental justice populations exist in Rio Blanco and Uintah Counties (see Table 14).

In 2010, Rio Blanco County had a population of 6,666 persons, of which approximately 913 (13.7 percent) were minorities and approximately 353 (5.3 percent) were living below the poverty level. Minority populations and low income populations were lower in Rio Blanco County than in the state of Colorado. Uintah County in 2010 had a population of 32,588 of which approximately 5,605 persons (17.2 percent) were minorities and approximately 3,813 (11.7 percent) were living below the poverty level. In Uintah County the minority populations were lower and the low-income population in were higher than for the state of Utah. The CEQ identifies minority and low income groups as Environmental Justice populations when either (1) the population of the affected area exceeds 50 percent or (2) the population percentage in the affected area is meaningfully greater (generally taken as being at least 10 percent 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.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Under the Proposed Action Alternative, existing employment opportunities at Deserado Mine would continue at the current rate for an additional 10 years, approximately. No additional demand for housing or municipal services would be anticipated. Mining operations would be extended throughout the period required to mine the additional recoverable coal reserves in the LBA. The extension of mining operations would also extend the annual payroll, local expenditures, and taxes and royalty payments. The value of the coal extracted would be approximately $80 million per year, and the company would spend approximately $59.5 million per year in payroll, materials, services, taxes, rentals, and royalties. The majority of these expenditures would be spent within the local region.

The BLM receives annual payments from coal lease holders based upon rents at not less than $3.00 per acre. Royalty payments are 8 percent of the value of the coal removed from an underground mine (43 CFR 3473). Present day estimated annual royalty at 8 percent and rental payments would be in excess of $5 million. At the time of the lease issuance additional monies are received from the winning bonus bid received at the sale which is based on the amount of recoverable coal resources and the coal value. The winning bid will be the highest bid that meets or exceeds the coal tract's presale estimated fair market value and in no case shall the minimum bid be less than $100 per acre ($315,743.00).

Royalties from the Federal coal are distributed in the following way:

- 50 percent returns to the Federal treasury in the General Fund;
- 50 percent returns 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.

Costs associated with the proposed action are likely to be minor and short-term in duration. There are likely to be minor negative impacts to recreation, wildlife habitat, grazing, and dust levels, however these will be temporary in nature.

Cumulative Effects: The cumulative socioeconomic impacts 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. Local population and infrastructure in the area would likely remain constant during the continued operation of the mine.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Mining operations at the Deserado Mine would be shortened by approximately 10 years, shortening the duration of all economic effects described in the proposed action by the same time frame. There would be the loss of an additional 10 years of mine life which would include the loss of 164 full time local jobs and the associated $59.5 million per year in payroll, materials, services, taxes, rentals, and royalties.

Cumulative Effects: The cumulative socioeconomic impacts of the loss of mining would likely include an increase in local unemployment rates once the mine completed its work on existing leases. Residential and other development activities would decrease and a surplus of residential housing could occur.

Stipulations to be Applied as Mitigation:

None.

FOREST MANAGEMENT

Affected Environment:

The Proposed Action is located within both productive and dry exposure stand classes of juniper woodlands as defined by a survey performed by White River Field Office personnel from 2003-2005. Productive exposure types occur on primarily lower gradient slopes and north and east aspects. Growth rates are higher in these areas due to soil features which allow for effective use of precipitation. Dry exposure types occur when slopes and soil features do not allow for the retention of precipitation. The growth rates within these areas are low and generally the trees present are mature. These habitat types are further broken down based on the age class of the stand. In this case the affected stands are both mature and young. Mature juniper trees on productive exposure establish themselves as the dominant plant community on the site. Young juniper trees are a component of the plant community or encroach into sagebrush and mountain shrub communities in the absence of reproduction through time and will eventually establish as the dominant plant community.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Following reclamation it is expected that juniper will invade the site within 50-70 years and would develop a mature stand within 250-350 years. There are approximately 88.4 acres of dry exposure juniper woodlands and 92 acres of mature productive

exposure juniper woodlands. The loss of juniper woodland would adversely affect wildlife and nesting habitat. Impacts would be long-term until woodlands regenerate successfully.

Cumulative Effects: Removal of mature and middle-aged juniper trees would reduce the potential for outbreak of woodland diseases and pest infestations. By reducing the stand size of juniper trees in areas historically included in sagebrush and grass communities, it would increase the open areas preferred as foraging areas by wildlife and livestock. Acceptance of mitigation measures outlined for fire management would reduce the build-up of cleared woody material from the Project Area, reducing the likelihood of slash contributing to possible large fires.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under this alternative the Proposed Action would not occur and therefore there would be no removal of juniper woodlands.

Cumulative Effects: Removal of mature and middle-aged juniper trees would not occur and the potential for outbreak of woodland diseases and pest infestations could increase. Stand size of juniper trees in areas historically included in sagebrush and grass communities would not be decreased and the open areas preferred as foraging areas by wildlife and livestock would not increase.

Stipulations to be Applied as Mitigation:

1. In accordance with the 1997 White River ROD/RMP, all trees removed in the process of construction shall be purchased from the BLM. Before any ground disturbance occurs, a vegetative material permit must be purchase from the BLM for any juniper woodland to be removed. Trees should first be used in reclamation efforts and then any excess material made available for firewood or other uses.
2. Woody material will be chipped and stockpiled for later use in reclamation. Woods chips can be incorporated into the topsoil layer to add an organic component to the soil to aid in reclamation success.
3. Woody materials, not used for woods chips, required for reclamation shall be removed in whole with limbs intact and shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been re-contoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20-30 percent ground cover. Limbed material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.
4. Trees that must be removed for construction and are not required for reclamation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.

RANGELAND MANAGEMENT

Affected Environment:

The proposed coal lease is located on the Spooky Mountain (06316) and Red Wash (06320) grazing allotments. The Spooky Mountain grazing allotment is leased by Cross Mountain Ranch and the Red Wash allotment is leased by Villard Ranch. Use on the two allotments is outlined in Table 17.

Table 17. Grazing Schedules For The Spooky Mountain and Red Wash Allotments

GRAZING SCHEDULE FOR THE SPOOKY MOUNTAIN (06316) ALLOTMENT								
ALLOTMENT		LIVESTOCK		GRAZING PERIOD				
Number	Name	Number	Kind	Begin	End	% PL	Type Use	AUMs
06316	Spooky Mountain	2500	Sheep	3/1	4/10	96	Active	647
06316	Spooky Mountain	2500	Sheep	11/20	2/28	96	Active	1,594

GRAZING SCHEDULE FOR THE RED WASH (06320) ALLOTMENT								
ALLOTMENT		LIVESTOCK		GRAZING PERIOD				
Number	Name	Number	Kind	Begin	End	% PL	Type Use	AUMs
06320	Red Wash	1600	Sheep	3/1	4/10	100	Active	431
06320	Red Wash	1600	Sheep	1/25	2/28	100	Active	368

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Granting the coal mine lease for the proposed lands would result in the disturbance of 56 acres of land used for grazing within the Red Wash and Spooky Mountain grazing allotments. The disturbance associated with mining activities will potentially reduce forage on the two allotments by three Animal Unit Months (AUMs). An AUM is defined as the amount of forage necessary to sustain one cow/calf pair or five ewes for one month. The disturbance necessary for developing the nitrogen/degas holes and ventilation shafts is relatively short-term (1-3 years), and there could be an increase in available forage at the well sites if reclamation is successful and improves the vegetative communities where the wells are drilled. It is unlikely that all 56 acres of disturbance will occur at once, and holes will be drilled as mining progresses on the lease. As mining progresses along the lease, areas no longer being mined will be reclaimed.

There are also multiple range improvements located throughout the proposed lease such as ponds, fences, and long-term monitoring plots. These range improvements are used to manage livestock on the allotments by improving use and distribution as well as evaluating use on the range. There is potential for mining activities to damage range improvements during well pad construction and drilling.

Vehicle use will increase on the allotments in the areas proposed for leasing. Increased traffic especially during the construction phase of the project will increase the likelihood of conflicts between construction equipment and livestock. There is the potential for livestock to be killed by

construction vehicles, or the potential for accidents when equipment operators try to evade livestock in the area.

Cumulative Effects: Permitted AUMs within the two grazing allotments are compatible with existing mining development in the area since both permits have been reviewed and renewed within the last five years. Continued development into the future does have the potential to impact permitted AUMs on the two grazing allotments. The impacts to grazing use will be evaluated in the grazing permit renewal process. It is anticipated that development of this lease will be staggered over time and all 56 acres will not be disturbed at once minimizing the loss of forage on the allotments. This disturbance is nominal in regards to the overall size of the two grazing allotments and is not anticipated to impact grazing use.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: No impacts to grazing use will occur from the No Action Alternative.

Cumulative Effects: Permitted AUMs and grazing use will not be impacted by the No Action Alternative. Past and present development of coal resources in the area currently are addressed in previous permit renewals that have taken place on both allotments within the last five years.

Stipulations to be Applied as Mitigation:

1. Any range improvements damaged during activities associated with mining will be repaired to working condition as soon as possible after mining activities have been completed and there is no risk of re-damaging the improvement.

REALTY AUTHORIZATIONS

Affected Environment:

There are several Blue Mountain Energy ROW authorizations within the LBA: (COC30118, COC30119, COC31639, COC31709, and COC44223) that are authorized for off lease facilities associated with the mine. This includes power transmission lines, portions of the overland conveyor, slot storage, load out, rail road, refuse area, and associated roads. Road ROW COC31640 is authorized to Western Fuels-Utah. Telephone cable ROW COC36321 is authorized to CenturyTel of Eagle. Road ROW COC49144 authorizes Rio Blanco County Road 73.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Damage to the facilities or rights of existing ROW holders could occur if construction activities are not properly planned and other ROW facilities are not properly identified prior to construction.

Cumulative Effects: If the number of ROW holders in the project area increased so would competition for suitable locations for facilities. Increased ROW densities would also lead to a higher probability of conflict between ROW users.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Failure to authorize the proposed project would not result in any increased impacts to realty authorizations in the area.

Cumulative Effects: There would not be any cumulative effects from not authorizing the proposed project.

Stipulations to be Applied as Mitigation:

1. All activities shall comply with all applicable local, state, and federal laws, statutes, regulations, standards, and implementation plans. This would include acquiring all required State, Moffat, and Rio Blanco Counties permits, effectively coordinating with existing ROW holders, and implementing all applicable mitigation measures required by each permit.

ACCESS AND TRANSPORTATION

Affected Environment:

Access to the Proposed Action would be via Moffat County Road 61 off of U.S. Hwy 40 in the north, or via Rio Blanco County Roads 65 and 73 off of State Hwy 64 in the south. U.S. Highway 40 and State Highway 64 are the primary travel routes in the region and receive moderate to heavy amounts of traffic. County Roads 65, 73 and 61 are natural surfaced and accommodate moderate amounts of traffic mainly associated with various on-going coal mining activities in the area. Other primary uses of these roads include traffic associated with dispersed recreation, primarily hunting and camping, and off highway vehicle (OHV) use.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: No increase in traffic beyond that which is currently related should be expected from the Proposed Action as mining activities will just be moving from one portion of the site to the new location. Traffic along the natural surfaced roads during dry periods is likely to result in an increase in fugitive dust. Access roads to the drill sites and other areas of activity do not penetrate roadless areas and are not anticipated to create public access in previously inaccessible areas. It is unlikely that the project area would experience greatly increased levels of traffic by the public as a result of the Proposed Action. Subsidence from previous mining of longwall panels on county roads 65 and 96 has not interfered with public use of these roads and it is not expected to interfere in the future with use of public roads in the LBA.

Cumulative Effects: None have been identified.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Since the project would not occur, no impacts to transportation and access are expected.

Cumulative Effects: None have been identified.

Stipulations to be Applied as Mitigation:

None.

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TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED:

Letters requesting consultation were mailed to officials of the Ute Indian Tribe of the Uintah and Ouray Reservation, Southern Ute Indian Tribe, Ute Mountain Ute Tribe, Eastern Shoshone Tribe

including the Native American Graves Protection and Repatriation Act (NAGPRA) representatives and the Tribal Historic Preservation Office (THPO) of the Tribes on February 24, 2012. Follow-up phone calls and emails were conducted on April 9, 2012. The Ute Indian Tribe of the Uintah and Ouray Reservation responded but no other replies were received. Endangered Species Act section 7 consultation on the LBA was initiated with the FWS Western Colorado Ecological Services Office 9 April 2012. A request for formal consultation was initiated with submission of WRFO's Biological Assessment 3 July 2012. The FWS concurred with BLM's determinations on listed species via Biological Opinion dated 26 July 2012 (for summary of assessment see number 9 in Finding of No Significant Impact). Colorado Parks and Wildlife and the Dinosaur National Monument were also consulted. The Office of Surface Mining and the Colorado Division of Reclamation Mining and Safety are cooperating agencies.

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility	Date Signed
Chad Meister	Air Quality Specialist (COSO)	Air Quality	01/22/2013
Bob Lange	Hydrologist	Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils	02/16/2012
Zoe Miller	Ecologist	Areas of Critical Environmental Concern; Special Status Plant Species; Forest Management	02/15/2012
Kristin Bowen	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	02/24/2012
Matt Dupire	Rangeland Management Specialist	Invasive, Non-Native Species; Vegetation; Rangeland Management	02/15/2012
Ed Hollowed	Wildlife Biologist	Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife; Wetlands and Riparian Zones	02/20/2012
Chad Schneckenburger	Outdoor Recreation Planner	Wilderness; Visual Resources; Access and Transportation; Recreation,	02/01/2012
Kyle Frary	Fuels Specialist	Fire Management	01/23/2012
Paul Daggett	Mining Engineer	Geology and Minerals; Project Lead – Document Preparer; Hazardous or Solid Wastes	07/13/2012
Stacey Burke	Realty Specialist	Realty	02/21/2012
Melissa J. Kindall	Range Technician	Wild Horse Management	02/01/2012
David Epstein	Economist (COSO)	Social and Economic Conditions	07/13/2012
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	07/05/2012

ATTACHMENTS:
Appendix A: Unsuitability Criteria

Appendix B: Comments and Responses
Appendix C: U. S. Fish and Wildlife Concurrence Letter

Appendix A: Unsuitability Criteria

Analysis of the Unsuitability Criteria

The LBA is located in a Known Recoverable Coal Resource Area (KRCRA). Unsuitability Criteria was applied to the KRCRA in the 1981 Coal Amendment to the White River Management Framework Plan (MFP) and the area of the LBA was determined to be suitable for subsurface development. Decisions pertaining to management of coal resources were carried forward into 1997 White River ROD/RMP. The 1997 White River ROD/RMP specifies the unsuitability criteria would be reapplied at the time a coal lease application is received. The following sections provide a detailed analysis of Unsuitability Criteria for the LBA. This analysis considers the Proposed Action within the context of BLM Unsuitability Criteria, as detailed in regulation (43 CFR 3461 *et seq*.), for coal leasing projects. The analysis also examined the applicability of exemptions and exceptions to the criteria, Exemptions to the criteria are not described, as no exemptions were determined to apply. Exceptions to the criteria are described, where applicable.

CRITERION 1

All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and federal lands in incorporated cities, towns, and villages.

Analysis

The lease area does not meet this this unsuitability criterion. Lands described in this lease application are not a part of any of the systems or categories listed above as unsuitable for leasing. Furthermore, none of the lands are required by statute to be studied for inclusion in such systems.

CRITERION 2

Federal lands that are within rights-of-way (ROW) or easements, or within surface leases for residential, commercial, industrial, or other public purposes, on federally owned surface shall be considered unsuitable.

Exception

A lease may be issued if all or certain types of coal development (e.g., underground mining) will not interfere with the purpose of the right-of-way or easement; or the right-of-way or easement was granted for mining purposes.

Analysis

Portions of Moffat County Road 61, Rio Blanco County Roads 65 and 73 cross the lease. These roads are constructed of gravel and native materials. Underground mining will not interfere with public use of these county roads since subsidence will be gentle and BME implements a monitoring and repair plan for mitigation of the effects of subsidence on county roads. All other existing ROWs located on the lease are for mining purposes and will not interfere with the purpose of the ROW. Therefore, for the reasons stated above, the exception can apply to this criterion.

CRITERION 3
Federal lands affected by Section 522(e)(4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the ROW of a public road, or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or institutional building or public park, or within 300 feet of an occupied dwelling.
Exception
A lease may be issued for lands used as mine access roads or haulage roads that join the right-of-way for a public road;
Analysis
The underground portion of the Deserado mine crosses beneath the public roads as discussed in Criterion 2 above. There are no public buildings, schools churches, community or institutional buildings or public parks within 300 feet of the mine area. Therefore, for the reasons stated above, the exception can apply to this criterion.

CRITERION 4
Federal lands designated as Wilderness Study Areas (WSAs) shall be considered unsuitable while under review by the Administration and Congress for possible Wilderness designation. For any Federal land that is to be leased or mined prior to completion of the Wilderness inventory by the surface management agency, the EA or EIS on the lease sale or mine plan shall consider whether the land possesses the characteristics of a WSA. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of non-competitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.
Analysis
The lease area does not meet this unsuitability criterion. No lands within or adjacent to the lease application area are designated as WSAs.

CRITERION 5
Scenic Federal lands designated by Visual Resource Management (VRM) analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely impact the scenic quality of the designated area.
Analysis
The lease area does not meet this is unsuitability criterion. The lease is situated in an area designated as VRM Class III. No lands within the lease are designated as VRM Class I Areas.

CRITERION 6
Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration, or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific use or agency give written concurrence to all or certain methods of mining.

Analysis
The lease area does not meet this unsuitability criterion. No lands within the lease are under permit for scientific study.

CRITERION 7
All publicly or privately owned places on Federal lands that are included in the National Register of Historic Places (NRHP) shall be considered unsuitable. This shall include any areas that the surface management agency determines, after consultation with the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO), are necessary to protect the inherent values of the property that made it eligible for listing in the National Register.
Exception
All or certain stipulated methods of coal mining may be allowed if, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, they are approved by the surface management agency, and, where appropriate, the State or local agency with jurisdiction over the historic site.
Analysis
A cultural inventory on areas not previously surveyed will be required by a BLM-approved archeologist prior to any surface disturbance. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated. Therefore, for the reasons stated above, the exception can apply to this criterion.

CRITERION 8
Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.
Analysis
The lease area does not meet this unsuitability criterion. No lands within the lease application area are designated as Natural Areas or as National Natural Landmarks.

CRITERION 9
Federally designated critical habitat for listed threatened or endangered plant and animal species, and habitat proposed to be designated as critical for listed threatened or endangered plant and animal species or species proposed for listing, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.
Exceptions
A lease may be issued and mining operations approved if, after consultation with the USFWS, it is determined that the proposed activity is not likely to jeopardize the continued existence of the listed species and/or its critical habitat.
Analysis

The lease area does not meet this unsuitability criterion. There is no federally or proposed designated critical habitat for listed threatened or endangered plant and animal species within the lease.

CRITERION 10
Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a State, pursuant to State law, as endangered or threatened shall be considered unsuitable.
Exception
A lease may be issued and mining operations approved if, after consultation with the state, the surface management agency determines that the species will not be adversely affected by all or certain stipulated methods of coal mining.
Analysis
Black-footed ferrets are federally and state listed endangered species. Under the auspices of a Non-essential, Experimental Population Rule (FR Vol. 63, No. 190, Oct. 1, 1998) black-footed ferrets have been released annually in the Coyote Basin (approximately13 miles southwest of the Red Wash lease tract) and Wolf Creek (approximately 3.5 miles east of the lease tract) Management Areas from 1999 through 2009. A plague epizootic first recognized in 2010 significantly reduced prairie dog populations in the Wolf Creek Management Area and is believed to have directly or indirectly killed its entire ferret population.

The Experimental Population Rule applies to any ferrets that may occupy or eventually be released in northwest Colorado and northeast Utah. Ferrets are wholly reliant on prairie dogs for food and shelter. Prairie dog towns within and near the lease tract are considered poorly suited for sustained occupation or reproductive use by black footed ferrets as they are isolated and small (96-97 percent of the landscape id devoid of prairie dog towns), and have low prey abundance. There are nine white tailed prairie dog towns varying in size from 1 to 49 acres (130 total Acres) within the lease boundary and an additional 170 acres of prairie dog towns within 1 mile of the lease boundary; portions of which (e.g., two to three acre acres) may be subject to temporary disturbance or facility occupation over the life of the project. There have been no verified sightings of ferrets, nor any known reproduction occurring within roughly 15 miles of the project area. Surface activities associated with the development of underground coal would have no measurable affects on black-footed ferret re-introduction or recovery efforts within this experimental Non-essential population area.

Burrowing owls are listed as threatened by the State of Colorado. The lease tract's limited support of burrowing owl nest activity is associated with those prairie dog towns in and near the lease tract. Most recently, from late April through mid-May, a single bird was noted in 2006 along the Staley Mine Road (burn on western end of lease) and a single bird and pair of birds (failed nest attempt) were documented in 2006 and 2009, respectively, off the southeast corner of the lease tract. Burrowing owl nesting activity is closely associated with the availability of intact prairie dog burrow systems. The utility of prairie dog burrows for owl nesting may be largely lost within three years of burrow inactivity. Occupancy rates and nest densities of burrowing owl tend to be positively correlated with the density of active prairie dog burrows (Klute et al., 2003). Prior to any site specific ground disturbing activities the following stipulation would be applied to the lease:

- A raptor survey will be required of activities (construction, drilling etc.) that are scheduled to take place during the raptor nesting season (generally February 1 – August 15) in those areas determined by WRFO to be subject to potential project-related disturbances. In the event an active nest is located in the course of survey, the following timing limitations (TL) and no-surface-occupancy (NSO) provisions, consistent with RMP-approved raptor protection stipulations, would be applied to the authorization as Conditions of Approval.
- NSO- Surface occupancy is not allowed within 200 meters (burrowing owl, red-tailed hawk) and 0.25 mile (ferruginous hawk) of identified raptor nests (RMP NSO-02 and NSO-03 exception and modification criteria apply).
- TL-No development activities are allowed within 0.25 (burrowing owl, red-tailed hawk) and 1 mile (ferruginous hawk) of special status raptor nests from February 1 through August 15 or until fledging and dispersal of young (RMP TL-3 and TL-04 exception and modification criteria apply).

Therefore, with the mitigation stated above, the exception can apply to this criterion.

CRITERION 11
A bald or golden eagle nest site on Federal lands that is determined to be active, and an appropriate buffer zone of land around the nest, site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the FWS.
Analysis
The lease area does not meet this unsuitability criterion. There are no known golden eagle or bald eagle nests, or roost sites, within the lease.

CRITERION 12
Bald and golden eagle roost and concentration areas on Federal lands used during migration and wintering shall be considered unsuitable.
Exception
A lease may be issued if the surface management agency determines that all or certain stipulated methods of coal mining can be conducted in such a way, and during such periods of time, to ensure that eagles shall not be adversely disturbed.
Analysis
The lease area does not meet this unsuitability criterion. No bald or golden eagle roost sites or concentrations areas are known to exist on Federal lands within the lease.

CRITERION 13
Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and buffer zone of Federal land around the nest site shall be considered unsuitable.
Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the FWS.
Analysis
The lease area does not meet this unsuitability criterion. There are no known prairie or peregrine falcon nest sites in the lease.

CRITERION 14
Federal lands that are high priority habitat for of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the FWS, shall be considered unsuitable.
Exception
A lease may be issued where the surface management agency, after consultation with the FWS, determines that all or certain stipulated methods of coal mining will not adversely impact the migratory bird habitat during the periods when such habitat is used by the species.
Analysis
Brewer's sparrow, ferruginous hawk, burrowing owl (see analysis included in Criterion 10), gray vireo, pinyon jay, juniper titmouse, greater sage-grouse (historical, see analysis included in Criterion 15) and golden eagle are migratory Birds of Conservation Concern or BLM-sensitive species that utilize the LBA area.

As proposed, construction and drilling activities are scheduled to take place during the late summer and fall months and would not typically coincide with migratory bird nesting activities. In the event drilling activities were to extend into the nesting season there would be worst-case potential to clear shrubland nest habitat at the rate of about 7 acres per year (with potential to adversely affect an average of 2-3 nesting attempts per year) and temporarily disturb nest activity across an additional 140 acres of nest habitat adjacent to disturbance (average of 14 acres for 3-7 days at any given time). Indirect disturbance of nest habitat in close proximity to infrastructure would be capable of failing attempts (e.g., average of 5 acres per site with potential failure of 15-20 attempts per year) or, depending on circumstances, result in occasional nest failure where brief disruptions occur out to 300 feet from activity (e.g., prolonged absence of adults during inclement weather). This influence may extend to an average of 9 additional acres per site, with potential failure of up to 10 nests per year. Although many of the species encountered during these activities would be generalists such as western meadowlark, blue-gray gnatcatcher, chipping, lark, and vesper sparrows, due to the prevalence of, particularly, Brewer’s sparrows in these shrublands, birds of higher conservation concern may comprise 30-50 percent of affected nests (worst case, about 12 per year). Worst case effects, though unlikely, would have no measurable influence on the abundance or distribution of breeding populations of migratory bird even at the smallest landscape scale. Dispersed, small-scale habitat modifications represented by reclaimed areas cleared of shrubs and occasional, brief monitoring activity would have little, if any, subsequent influence on the pre-development distribution, abundance, or productivity of migratory birds inhabiting the individual facility locales. Development of surface features associated with lease development would be required to avoid, to the extent practicable, the core migratory bird nesting season (i.e., 15 May to 15 July).

The lease tract is known to have supported nesting activities of several raptors, including: ferruginous hawk (three nest sites). Nest sites of an additional seven ferruginous hawks have been recorded within a mile of the lease tract boundaries. WRFO has been unable to document ferruginous hawk use of those nest sites within the lease tract over the last two years. Ferruginous hawk reproductive activity is strongly correlated with the abundance and availability of favored prey (i.e., prairie dog, cottontail rabbit) and low occupancy rates may be associated with recent bouts of sylvatic plague along the Highway 40 corridor. WRFO nest records indicate that these territories have historically low rates of nest occupancy (less than 15 percent) and low

nest success rates (about 7 percent). Adults return in February and begin nesting in early April. Young are generally fledged by mid-July. Based on single unsubstantiated record from the early 1990s, golden eagles are recorded as having historically nested within the boundaries of the lease tract, but none have been documented since.

Therefore, for the reasons stated above and applied raptor stipulations from Criterion 10 above, the exception can apply to this criterion.

CRITERION 15

Federal lands that the surface management agency and the State jointly agree are habitat for resident species of fish, wildlife, and plants of high interest to the State, and that are essential for maintaining these priority wildlife and plant species, shall be considered unsuitable. Examples of lands that serve a critical function for the species involved include: (i) active dancing and strutting grounds for sage-grouse, sharp-tailed grouse, and prairie chicken, (ii) winter ranges crucial for deer, antelope, and elk, (iii) migration corridor for elk, and (iv) extremes of range for plant species.

Exception

A lease may be issued if, after consultation with the State, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

Analysis

Big Game

The entire lease tract is encompassed by deer and elk winter ranges that serve as severe winter range to both species (i.e., support 90 percent of more of the local population during the worst 2 winters of 10) and, in the case of deer, are designated winter concentration areas (support at least twice the animal density of surrounding ranges). The entire lease tract is subject to big game severe winter range timing limitations (TL). No development activity is allowed from December 1 through April 30 (RMP exceptions and modifications apply).

White-Tailed Prairie Dogs

The Proposed Action would not be expected to have any substantive influence on prairie dogs or their habitat. Based on raw probability, it is unlikely that more than 2-3 acres of habitat would be considered for surface facility use over a 10-year period. The WRFO routinely relocates surface disturbance to avoid, where practical, the involvement of prairie dog burrow systems and development of proposed surface facilities would generally pose no risk of individual mortality or represent a substantive reduction in availability of functional habitat. It is also unlikely that shallow leveling activities or brief cross-country vehicle use by light trucks and, infrequently, truck-mounted drilling rigs and water trucks on occupied valley terraces would have any meaningful consequence on the integrity of underground burrow systems (Menkens and Anderson 1985). Too, the practical influence of subsidence on burrow system integrity must be considered localized and temporary, since there has been no substantive change in prairie dog distribution overlying mine panels in Red Wash for at least 20 years.

In the absence of timing considerations, brief (less than 1 week), single-point construction and drilling activities would have only localized potential to disrupt reproductive activities sufficient to influence survival or recruitment, much less generalized surface use for foraging. However,

due to the elevated status of white-tailed prairie dogs as BLM-sensitive species (comparable to candidates for ESA listing), conditions of approval involving avoidance and activity deferrals (up to 200-meters and 60-days) would be applied to avoid, as much as practical, compromising the integrity of active burrow systems and reproductive activities that involve gestation and dependent young (i.e., April-May).

Greater Sage-Grouse

As late as the mid to late-1980s, small numbers of sage-grouse made year-round use of the lower Red Wash drainage, but sage-grouse are now either absent or relegated to sporadic, low-density use during the winter. Nesting, brood-rearing, and general summer and fall use of ranges encompassed by the lease tract was formerly associated with the one or two leks located on Hatch Flat, between 0.8 and 1.7 miles east of the lease boundary. There has been no documented activity at these leks since 1981 (Hatch Flat high male count = 13). Another historic lek (inactive prior to 1977) was located about 2 miles north of the lease along Highway 40, but birds associated with this lek likely remained north of Coal Ridge based on distribution of habitat and geographical barriers. At present, the nearest active sage-grouse lek is more than 12 miles east of the lease tract. Declining bird use and eventual extirpation appears to have been associated with increasing prevalence of cheatgrass in these shrubland understories. Colorado Parks and Wildlife has categorized sage-grouse habitat influenced by mine activities and habitat encompassed in the proposed lease as sage-grouse general habitat. Short term disturbance to approximately 56 acres of sage-grouse general habitat in diminutive, widely dispersed sites is not expected to alter the suitability or utility of sage-grouse habitat in lower Red Wash over the life of the project and would have no residual influence on sage-grouse habitat character once these facility sites are reclaimed.

The BLM-sensitive species debris milkvetch (*Astragalus detritalis*) has the potential to occur in the project area. Known populations are approximately 1-1.5 miles to the east of the project area and are found on Turley fine sandy loam, Torriorthent-rock outcrop, and rock outcrops, all of which are also found in the project area. No other BLM-sensitive or federally listed species or habitats are known in the project area. The following stipulation would be applied to the lease:

Prior to any surface disturbing activity, all areas must be surveyed with a 100 meter buffer according to the WRFO special status plant species survey protocol. BLM may request an avoidance buffer to be implemented if any special status plant species are found within the area to be disturbed. If parts of any special status plant species will be removed or directly affected, the following actions may be employed:

- Before removal of any individual special status plant species, the seed must be collected. The seed can be preserved by a botanical preservation organization as well possibly be used in restoration of the species post disturbance. Any seed collection activity and use must be coordinated with the WRFO-BLM Authorized Officer.
- All seed mixes must use native species only. Exotic, aggressive species used for reclamation would make it difficult for debris milkvetch to compete against to colonize a new area with similar soils.

Therefore, for the reasons stated above and applied lease stipulations, the exception can apply to this criterion.

CRITERION 16
Federal lands in riverine, coastal, and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.
Analysis
The lease area does not meet this unsuitability criterion. None of the lands in the lease are within a riverine, coastal, or special floodplain.

CRITERION 17
Federal lands that have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.
Analysis
The lease area does not meet this unsuitability criterion. None of the lands in the lease are within a municipal watershed.

CRITERION 18
Federal lands with National Resource Waters, as identified by States in their water quality management plans, and a buffer zone of Federal lands ¼-mile from the outer edge of the far banks of the water, shall be unsuitable.
Analysis
The lease area does not meet this unsuitability criterion. None of the lands in the lease area are identified as a National Resource Water.

CRITERION 19
Federal lands identified by the surface management agency, in consultation with the State in which they are located, as alluvial valley floors according to the definition in Subpart 3400.0-5(a) of this Title, the standards of 30 CFR Part 822, the final alluvial floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved State programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.
Analysis
The lease area does not meet this unsuitability criterion. The lease is not within an alluvial valley floor.

CRITERION 20
Federal lands in a state to which is applicable a criterion (i) proposed by the state or Indian tribe located in the planning area, and (ii) adopted by rulemaking by the Secretary, shall be considered unsuitable.
Analysis
The lease area does not meet this unsuitability criterion. There are no lands within the lease to which is applicable a criterion proposed by the State of Colorado or Indian tribe.

Appendix B: List of Public Comments and Responses

A total of 54 commenters responded to the Preliminary EA. **Table B-1** identifies coded commenters. Coded and other commenters are listed in the Commenter column of **Table B-2**.

Table B-1. Comment Identifier Code

Comment Code	Commenter
BME	Blue Mountain Energy Inc., Scott Wanstedt Environmental Engineer
CEA	Clean Energy Action, Leslie Glustrom Director of Policy and Research
CO-FORCE	Coloradans For Fair Rates and Clean Energy, Gina B, Hardin
WEG	WildEarth Guardians, Jeremy Nichols Climate Energy Program Director

A listing of summarized comments, and BLM responses, is indicated in **Table B-2**. Below:

Table B-2. Listing of Comments and BLM Responses

Issue or Resource	Commenter	Comment Summary	Comment Response
NEPA	CEA	The "leasing" of the public's coal should be preceded by a full Environmental Impact Statement (EIS). The coal at question here is irreplaceable on any time scale that matters. It is critical that we manage it in the wisest possible way.	Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27 an environmental impact statement is not required. (See FINDING OF NO SIGNIFICANT IMPACT (FONSI) DOI-BLM-CO-110-2012-0023-EA).
NEPA	CEA	The BLM should do a much more thorough job of analyzing cumulative impacts of all the environmental consequences, including those from air emissions. (formerly pages 24-30, now pages 27-33 EA). In the case of CO2 emissions from the oxidation of the coal, cumulative actions are occurring on the global scale, and each decision-maker needs to avoid adding more CO2 to the atmosphere as long as there is a reasonable alternative, which there clearly is. At the very least, the BLM should conduct a cumulative impact assessment and EIS on all BLM coal leases (e.g. Colorado, Wyoming, Montana, Utah etc.) and no "lease" should be moved forward until the question of what to do with the public's coal is given a very hard look. Again, the value of the sequestered carbon should be given careful consideration before taking it out of the ground which will inevitably lead to the oxidation of the carbon and the	BME Deserado mine is a captive mine and all coal mined would be utilized by the existing Bonanza Power Plant at the current rate and therefore there would no net increase in CO2 emissions.

Issue or Resource	Commenter	Comment Summary	Comment Response
		formation of CO2	
NEPA Alternatives	CEA	The BLM should give very thoughtful consideration to the ability of our country to power itself with low and no-carbon resources.	An alternative is only considered "reasonable" for detailed analysis if it meets the purpose and need for the action. For this project, the decision in front of the BLM is whether or not to lease Federal coal resources. Discussion of the myriad of ways to generate electricity is a policy question and is out of the scope of analysis for this EA.
NEPA Alternatives	CEA	The BLM should look at alternatives to burning coal at the Bonanza plant. With coal arriving at the Bonanza coal plant in 2012 at more than $2/MMBTU there is good reason to believe that Utah can generate electricity in cleaner and cheaper ways with a combination of natural gas, wind, solar and other renewable energy sources.	This is beyond the scope of analysis for this leasing decision. See the first comment response to CEA's comment on NEPA Alternatives.
NEPA Alternatives	CO-FORCE	The EA entirely fails to address development of renewable energy at the proposed mine site or elsewhere as an Alternative to the Proposed Action.	This is beyond the scope of analysis for this leasing decision. See the first comment response to CEA's comment on NEPA Alternatives.
NEPA Alternatives	CEA	To address the unequivocal effects of climate change, we need to analyze each decision related to greenhouse gas (GHG) emissions and see if there are better alternatives. In this case, there are almost certainly better alternatives. Until the BLM has given full consideration to alternative, lower-carbon ways to generate electricity they have not fulfilled the need to take a "hard look" at the environmental consequences of federal actions, in this case the "leasing" (i.e. sale) of the public's coal.	This is beyond the scope of analysis for this leasing decision. See the first comment response to CEA's comment on NEPA Alternatives.
Air Quality GHG	CEA	The release of approximately 5 million tons of CO2 per year from the burning of the coal from the Deserado mine at the Bonanza plant (formerly page 20 now page 23EA) is a significant amount of CO2 and should be treated as such, particularly because there are very likely cleaner and more cost-effective ways of generating electricity. Dismissing these CO2 emissions because they are small on a national or global scale (e.g. p 24, EA) is inappropriate.	Please see the response to the second CO-FORCE GHG comment below. No change was made to the text.

Issue or Resource	Commenter	Comment Summary	Comment Response
Air Cumm GHG	CO-FORCE	While we have several concerns regarding the EA, we will limit our comments to the EA's failure to adequately address the cumulative effects of the proposed lease's dire impacts on climate change as described on pages 24, 29 and 30 (now pages 27, 30, and 33) of the EA.	The climate change impacts contained within the EA and referenced in the comment are based on global modeling scenarios that predict potential impacts relative to various atmospheric concentrations of GHGs resulting from a multitude of manmade or induced (climatic feedback) causes. Mitigating potential climate change impacts and finding viable engineering based solutions for controlling GHG emissions that are both economical and can be practically implemented is a rapidly evolving sector within the scientific, political, engineering, and grass roots communities. However, the scale of the problem and the lack of viable solutions, reasonable alternatives, or policy (at present), put climate change mitigation options clearly within the realm of research and development and continuous debate/negotiations. Avoidance as a mitigation option is equally ineffective unless implemented on a unilateral basis and on a global scale. For this action, avoidance of the projected GHG emissions would still result in those climatic changes and impacts described in the EA, assuming the models are accurate, solely by virtue of the cumulative and global nature of the problem. No change was made to the text.
Air GHG	CO-FORCE	The EA entirely fails to include the cumulative effects of greenhouse gas emissions (GHGs) resulting from the burning of the coal at Bonanza Power Plant and elsewhere. "GHGs are air pollutants subject to regulation under the CAA . . . ." (formerly page 15 now page 18). As the EA states on page 7(now page 10), "Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the	On page 32 the EA provides a cumulative effects comparison to a modeling study that EPA prepared as a hypothetical analysis. It is clear in the EA that on an annual basis when the project emissions are added to the indirect coal combustion emissions, these totals are still significantly less (approximately 35% on a CO_2eq basis) than the EPA figures used to

Issue or Resource	Commenter	Comment Summary	Comment Response
		incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”” The leased is expected to yield 21 million tons of coal. When burned, this coal will produce a readily quantifiable amount of GHGs. “[W]hen added to the other past, present, and reasonably foreseeable actions” of other agencies and persons, the cumulative effect of GHG release into the atmosphere is devastating to all life as we know it. The lack of tools available “to quantify incremental climate changes associated with the proposed lease’s GHG emissions” (p.29) does not justify excluding analysis of the cumulative effects, about which there is extensive scientific knowledge. The cumulative incremental effects of coal mining which inevitably leads to coal burning are the one greatest contributor to climate change that the “Affected Area,” state, country and planet are already experiencing and predicted to get much worse are at best, extremely dangerous to ignore.	estimate global temperature rise in the hypothetical analysis referenced above. In the context of the EPA hypothetical analysis the time frame comparison is also reduced. The EPA emissions lasted for 50 years, while this analysis projects a continuation of mining (and assumed combustion) for twenty. The EPA analysis resulted in an average global temperature rise of between 0.00022 and 0.00035 degrees centigrade. On a relative carbon mass basis the proposed action would scale to an approximate global average temperature rise of 1.56×10^{-6} to 2.48×10^{-6} degrees centigrade, or less than two full orders of magnitude less than the EPA scenario. The cumulative effects are disclosed within the document and would remain regardless of approval or implementation of the proposed action. No change was made to the text.
Air GHG	BME	Pages 19 and 20 (now pages 22 and 23) discuss the combined GHG emissions of the mine and the Bonanza Power Station. It should be noted that the electrical power that is consumed by the mine and electric railroad are supplied by the Bonanza Power Station. The Rangely area is serviced by Moon Lake Electric Association, an owner/member of Deseret Generation and Transmission Cooperative (a.k.a. Deseret Power). The Bonanza Power Station is owned by and is the primary source of power for Deseret Power and its members, thus, the electrical power source for the Deserado Mine. Therefore, GHG produced from the generation of electricity used by the Deserado Mine should be viewed as a subset to that produced by the Bonanza Power Station and not in addition to it.	Changes were made to Table 5 to reflect the GHG emissions from electricity produced for the electric haul train and mine usage are included in the Bonanza Power Station total and not added to the power plant total.
Air	WEG	The BLM does not appear to have adequately addressed the direct and indirect impacts of issuing the coal lease to regional air quality, including impacts to regional ozone levels and PM2.5 levels, In particular, it does not appear that the Agency addressed the direct and indirect impacts of the proposed coal lease to ozone and nitrogen dioxide concentrations in the region, particularly in the context of the current national ambient air quality standards for ozone and nitrogen	Ozone is not a pollutant of concern for this site given the limited precursor emissions emitted by the mine and current area ozone air monitoring data (not presented for reasons outlined within the EA and above). The discussion on ozone and its precursors are presented in the EA on pg. 24. The closest federal reference monitor in the area is in Rangely, CO,

Issue or Resource	Commenter	Comment Summary	Comment Response
		dioxide, This is especially of concern given that the Uinta Basin of Utah and Colorado, as explained by WildEarth Guardians in their scoping comments, is already in violation of the ozone national ambient air quality standards. Although the BLM asserts that emissions will stay within the "regional emissions profile" (*see* draft EA at 27), given that the region is already violating the ozone national ambient air quality standards, it is unclear how this indicates that the impacts of the proposed coal lease will not be significant	approximately 13km to the south of the mine. The 4th highest 8 hour max reading for 2010, 2011 & 2012 were 0.058, 0.073, and 0.069 ppm. Although the data is not sufficient for a regulatory 3 year standard average due to limited observations in 2010, the calculation yields 0.066 ppm which is below the 0.075 ppm standard. It is inaccurate to suggest that Colorado's portion of the Uinta Basin is in violation of the ozone standard. Western Colorado air quality as a "region" is currently meeting the NAAQS. The Uinta basis in Utah has experienced problems with wintertime ozone, but never during the traditional summertime ozone formation season. The wintertime phenomenon is relatively recent with respect to air quality issues and is not well understood and is even less so accurately represented by the current state of the practice air quality models. To be clear, this phenomenon has occurred (in both Utah and Wyoming) only when certain meteorological conditions were present and ground snow cover was of sufficient depth to effectively reflect the suns incoming UV radiation (a necessary component of ground level ozone formation). The current theory of off season or wintertime ozone formation (a period when the sun's rays are "weakest") holds that the reflected UV effectively doubles the formation path length contact potential or "UV dose" that would otherwise normally be absorbed and re-emitted as infrared radiation when snow cover is not present. Further, the reaction limiting species (NOx or VOC) is unknown for these regions and additional studies involving the States, BLM, and EPA are ongoing. Regardless, the WRFO completed photochemical grid modeling (PGM) (to support their Draft RMP)

Issue or Resource	Commenter	Comment Summary	Comment Response
			of potential cumulative future year emissions, at far greater levels than are currently present within the field office and adjacent planning areas, and determined that these levels of emissions would still allow for attainment of the ozone standard within the planning area. The mines mobile sources and APEN sources would have been included within the regional SMOKE model emissions inventories and grown as appropriate from the base year to feed into the PGM for analysis. Thus the results are representative and inclusive of all area source emissions. No change was made to the text. With respect to the NO_2 claims, NO_X is not a pollutant of concern, as stated within the EA. Total facility annual NOx emissions have been calculated at 30.2 tons per year for both stationary and mobile sources. For comparison purposes, this emission rate is less than the annual NOx modeling threshold established by CDPHE, which requires dispersion modeling when emissions from a new stationary source or net emissions increase at a modified stationary source exceeds 40 tpy. The Deserado Mine is proposing a net emissions increase of zero for this action, or less than NOx modeling thresholds established by CDPHE. Further, the Rangely monitor (13 km away) recorded 98th percentile 1-hour readings for the last three years of 21, 23, and 18 ppb. Although the data is not sufficient for a regulatory 3 year standard average due to limited observations in 2010, the calculation yields 21 ppb which is well below the 100 ppb standard.

Issue or Resource	Commenter	Comment Summary	Comment Response
			No change was made to the text. With respect to the $PM_{2.5}$ claims, $PM_{2.5}$ is not a pollutant of concern, as stated within the EA. The decision before the agency would not result in an increase in these types of emissions (i.e. existing). The Bureau has disclosed the information to meet NEPA requirement commensurate with the decision before the agency. Any increase in production or emissions would be authorized and reviewed by CDPHE whom has regulatory authority for such matters and issues emissions permits for the mine. Further, the Rangely monitor (13 km away) recorded the 98th percentile 1-hour and annual mean readings for the last three years of 6 and 2.5, 13 and 4, and 18 and 2.4 $\mu g/m^3$. Although the data is not sufficient for a regulatory 3 year standard average due to limited observations in 2010, the calculations yield 12.3 and 4 $\mu g/m^3$ which is well below the 35 and 12 $\mu g/m^3$ hourly and annual standards.
Water	WEG	EA does not appear to have adequately addressed the impacts to water.	WRFO believes the impact analysis for water quality is adequate and addresses all issues that were identified during scoping. On page 38 of the EA the document states that Red Wash and Scullion Gulch do not contain or directly drain into water bodies on the 303(d) list of impaired water bodies for the State of Colorado. Impairment is a significant and regulatory threshold for water quality impacts. Potential water quality impacts from mining activities as a non-point source of pollutants are described in detail in the EA; also impacts due to poor soils, potential impacts from mining water

Issue or Resource	Commenter	Comment Summary	Comment Response
			discharges, and potential water quality impacts from air quality emissions are all described and assessed in detail in the EA. On page 3 of the Scoping Comments from WEG for water quality, it is stated that Red Wash is listed in the 1997 RMP as being non-functioning. It is important to know that the Proper Functioning Condition (PFC) assessment is only for riparian conditions and does and not necessarily indicate a problem with water quality. PFC assessments are designed to address riparian and wetland function and are very time sensitive. The 1997 assessment indicated that the riparian condition was improving and was of medium importance. Table 2 in the EA states that wetlands and riparian vegetation is not present, the project is not likely to impact wetland and riparian areas, and did not indicate any current problems with the Red Wash riparian areas downstream. Therefore no impacts to water quality should be inferred from this PFC assessment of Red Wash in 1997 and none were included in the EA.
Geology and Minerals	Mark Scanlon	The Deserado Mine is operating in the B coal seam. Deserado has mined 11 longwall panels from its existing federal coal leases and is currently in its twelfth panel. The Red Wash Lease occurs centrally between their other federal coal leases and contains virtually all of the remaining B seam reserves. Without the Red Wash Lease track more than a dozen future longwall panels will be shortened or omitted from their mining plans and more than 20 million saleable coal tons would be lost. If these reserves are bypassed they would never be mined because they would be isolated by prior mining and poor geology. Additional coal will also be lost from their existing coal leases in areas nearby. Minable coal deposits do not occur everywhere and it would be imprudent to discard proven coal reserves surrounded by existing coal leases.	Geology and Minerals section of the EA and the GER/MER identifies the potential bypass situation if the LBA is rejected. Text has been added to the Geology and Minerals section of the EA to better clarify the bypass potential.

Issue or Resource	Commenter	Comment Summary	Comment Response
Geology and Minerals	CEA	It is unclear how 21 million tons of coal can keep the Deserado mine operating until 2032 at a rate of about 2 million tons per year (formerly page 5 now page 7, EA). It appears that 21 million tons should last about 10 years—not 20. Please clarify.	The Deserado Mine currently has approximately eight to nine years of recoverable coal reserves in existing leases and if BME is the successful bidder, the LBA would add an additional ten years of recoverable coal reserves to the existing recoverable reserves. The majority of future longwall panels span more than a single lease (See Figures 1 and 2) and coal recovery would not continuously occur across an individual lease. Text for has been added for clarification to page 7
Wildlife	CEA	The BLM should provide a map of all raptors, kestrels and bald and golden eagle nesting, roosting and concentration sites observed within the last 10 years within the vicinity of the lease to ensure that Unsuitability Criteria 11,12 and 13 (in Appendix A) are being properly analyzed. Without a historical map of sightings and key areas, the public cannot be assured that the BLM has taken full precautions to protect these key species.	WRFO survey information indicates no active nests of bald or golden eagle, ferruginous hawk, prairie falcon (kestrels are explicitly excluded from Unsuitability Criterion 13), or burrowing owl have been documented on or near the lease tract over the last 10 years (since 2002). With the exception of a single active red-tailed hawk cliff nest in 1992, the last nest activity recorded from raptors specifically addressed in the Unsuitability Criteria was in 1985 and with disuse and progressive deterioration, virtually all nest features disappeared by 1989. As explained in the text (page 56), surveys would continue to be performed prior to any development activity that has the potential to adversely influence nesting functions. Where necessary, Conditions of Approval that are comprised of both a species-specific no-surface-occupancy and timing limitation component are applied to potentially disruptive activity as an effective means of maintaining the long term integrity of the nest site and preventing disturbance-induced failure of the nesting effort.
Wildlife	BME	On page A-7, first paragraph, it is incorrectly stated that 'Golden eagles are known to nest within the boundaries of the lease tract." This is contrary to statements made on pages 50 (now page 54) and A-5.	Text is changed to read “Based on single unsubstantiated record from the early 1990s, golden eagles are recorded as having historically nested within the boundaries of the lease tract, but none have been documented since.”

Issue or Resource	Commenter	Comment Summary	Comment Response
Aquatic Wildlife	WEG	EA does not appear to have adequately addressed the impacts of issuing the coal lease to endangered fish, including the Colorado pikeminnow and razorback sucker, and does not appear to have addressed the impacts to other environmental values, including to water and sensitive fish and wildlife. Particularly, addressed the direct and indirect impacts of mercury and selenium contamination to endangered fish in the region	Although selenium and mercury contamination associated with additional coal leasing and continued operation of the Bonanza power plant were issues addressed in WRFO's section 7 consultation with the USFWS, failure to append the draft EA with information that disclosed expected water quality impacts to endangered Upper Colorado River fishes was a staff oversight. Formal section 7 consultation with the Western Colorado Ecological Services Office was initiated with submission of WRFO's Biological Assessment dated 19 June 2012. The FWS concurred with BLM's determination that water quality impacts may affect, but are unlikely to adversely affect, populations of listed Colorado River fishes or their critical habitat (Biological Opinion dated 26 July 2012).
Social and Economic	CO-FORCE	Applicant Blue Mountain Energy is a Canadian based entity so its profits will not remain in the U.S., contributing to the U.S.'s economic recovery.	Blue Mountain Energy, Inc., (formerly Western Fuels-Utah Inc.) is a wholly-owned subsidiary of the Deseret Generation & Transmission Co-operative (Deseret) a United States based privately held power producer.
Social and Economic	CO-FORCE	the rationale behind the BLM's legal obligation to consider leasing the federally owned minerals is "economic recovery'" presumably of the United States (formerly page1 now page 4) . Renewable energy provides greater employment than does coal produced energy. Applicant Blue Mountain Energy is a Canadian based entity so its profits will not remain in the U.S., contributing to the U.S.'s economic recovery.	Economic recovery on page 4 refers to the requirement of the BLM to ensure the maximum economic recovery of the Federal coal resources. Text has been change for clarification. Blue Mountain Energy, Inc., (formerly Western Fuels-Utah Inc.) is a wholly-owned subsidiary of the Deseret Generation & Transmission Co-operative (Deseret) a United States based privately held power producer.
Social and Economic	CO-FORCE	EA fails to address renewable energy alternatives to the Proposed Action; and its failure to adequately address the purpose of the BLM's leasing program, economic recovery of the United States.	This is beyond the scope of analysis for this leasing decision.
Social and Economic	Orrin G. Hatch, U. S. Senator Utah	The coal mine and power plant make significant economic contributions to both Colorado and Utah. The operations employ nearly 300 employees, many with and annual payroll of almost $30 million and	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		taxes paid each year in excess of $10 million. In addition, Deseret Power is able to supply low cost power to Rural Electric Cooperatives in Utah. These low power rates help promote economic development in rural parts of the state and have been a catalyst for economic expansion.	
Social and Economic	Grand Junction Area Chamber of Commerce	As the voice of business on the Western Slope, the Grand Junction Area Chamber of Commerce would ask that the Bureau of Land Management grant the expansion lease to the Deserado Mine (Blue Mountain Energy). It is our understanding that the BLM's preliminary Environmental Assessment shows "no or minimal cumulative environmental effects" from the proposed lease. As a primary job supplier, Blue Mountain Energy gives much to our community. The Deserado Mine and Deseret Power provide the following to the Western Slope: • Employment of primary jobs to 165 coal miners and 105 Bonanza Power Plant employees • Royalty taxes paid $1,435,478.00 • Estimated Sales and Use tax of $709,689.00 • Support to the Rangely District Hospital in $199,000 (with $266,000 given in the first year) • 14 • Property tax of over $3,861,906 • Excise taxes of $1,130,685 • Severance tax of $343,514 • Reclamation tax of $266,858 The total taxes paid by Deserado Mine and the Deseret Power paid over $10,316,068 in taxes in 2011. This does not include the individual taxes and economic benefits paid by the 270 employees and their families. Primary jobs are desperately needed in Western Colorado right now, and the need for coal as a base load energy system is also needed. Through their nationally recognized productivity and safety record, these employers have been a catalyst for economic expansion in our area. They have been able to provide low cost power to Moon Lake Electric. We would urge you to please grant this expansion lease, so Blue Mountain Energy can continue to support our local residents and help	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
Social and Economic	Dixie Escalante Electric	Dixie Escalante is the Cooperative owned electric utility serving 16,000 plus consumer/owners in Southwestern Utah and Northwestern Arizona and a cooperative owner of Deseret Power of which Blue Mountain energy is a subsidiary These consumers rely on the clean energy produced by the Bonanza Power plant which is supported by the coal derived from Blue Mountain Energy. Blue Mountain Energy has applied for an additional coal lease from the BLM that will allow for continued operations at the Deserado Mine. If approved, this lease is expected to allow for further mining operations of the sole customer of Blue Mountain Energy, the 458MW, Bonanza Power Plant. The Bonanza power plant was constructed in the 1980's one of the main reasons for its construction was to serve energy to the developing oil and gas fields in the basin, another was to serve the proposed MX missile project in the west desert. This power plant was required to be a coal plant by the federal government and was largely needed for federal reasons at the time. It would be stupid to now deny that plant that was built and located where it is because of national needs, access to the coal it was built to consume. The leases in this coal field are necessary for the power plant to run out it's useful life which is important for the consumer owners of Deseret to continue their business and lives in an affordable way. The consumer/owners of Dixie Escalante are made up of retired people, business both large and small, farmers and ranchers, and publically owned facilities such as schools, all who rely on this energy source to sustain their livelihoods, which in turn drive the economy. On behalf of these 16,000 consumer/owners, we strongly urge you to approve this coal lease for the benefit of the end users, who are part of the tax paying public.	Thank you for your comment
Social and Economic	Duchesne County Commission	We strongly feel that by failing to grant the lease, it would have adverse and community wide impacts. We Fully support the mining operations at Deserado and would like to see the lease granted for the continued operation of the mine's sole customer, the 458 MW Bonanza Plant.	Thank you for your comment
Social and Economic	Rangely School District	The Rangely School District fully supports and appreciates the positive externalities associated with the Deserado Mine which include; significant tax revenue, substantial employment, and generous contributor to our community and culture. In these economic times school district are cutting courses, freezing salaries, reducing staff, and experiencing significant reductions in state funding. Over the last four	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		years, school districts have experienced a 16% negative factor due to state budget restrictions and inflation. We rely upon the local tax base to supplement shrinking state revenues and any reductions therein would impact our mission to provide a quality education for Rangely School District students. The most significant indicator for a child's success is the support he/she receives at home; which is greatly predicated upon full employment of the parents. In conclusion, Deserado Mine, Blue Mountain Energy and Deseret Power are good neighbors, strong supporters and reliable partners with K-12 Education and the Rangely School District.	
Social and Economic	Rangely District Hospital Board of Directors	Blue Mountain Energy, the operator of the mine, has been, is, and should continue to be a vital part of the local economy, tax base, and continued development of the vital infrastructure of our county, and areas surrounding it. Currently at the mine there are 165 coal miners employed. Also another 105 Deseret Power Plant employees, at the Bonanza plant depend on as the sole contributor for the fuel of their operations. The numerous vendors that supply materials, and support for both these operations also provide jobs for families in and around our area. The continued operation of the mine is vital to keeping these families employed and many small businesses operating. Taxes generated not only by the mine, but also by the power plant and the vendors that support the operations, are crucial to this area. The Deserado mine supports our hospital with $190,000 annually. This support is crucial to our goal in providing health care to our districts citizens and also to paying off our bond for the new hospital which will be completed by the end of this year. Should we no longer receive these monies, a larger burden of paying for operating the hospital and paying off the bond would have to be shifted to the taxpayers of our district. Given the rural nature of our district this added tax burden would be hard felt by all of our taxpayers. The taxes generated by the Deserado Mine are not just important to our hospital, but to all the tax based entities in our county. We will be opening an new health care facility here in Rangely, as stated earlier, by the end of the year. The contributions made now and in the future by the Deserado mine are critical to Rangely's health care system, and as well as to the rest of Rio Blanco County's services to their citizens. Without the support the county receives from the Deserado Mine many of these services will be	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		put at risk.	
Social and Economic	Utah Senator Kevin Van Tassell District 26	The coal mine and power plant make significant contributions to both Colorado and Utah. The operations employ nearly 300 employees, many of those live in my Senate district. The annual payroll is almost $30,000,000 and taxes paid each year are in excess of $10,000,000. In addition, Deseret Power is able to supply low cost power to Rural Electric Cooperatives in Utah. These low power rates help promote economic development in rural parts of the state and have been a catalyst for economic expansion. Because failure to grant the lease could result in significant adverse and state-wide impacts I strongly encourage BLM to support the new coal lease.	Thank you for your comment
Social and Economic	Ralph Santos	This mine is large part of the economy of the town of Rangely. It supplies this country with a clean plentiful source of energy. I do not for a minute agree with the current belief that somehow coal is dirty or causing death to Americans. We burn coal cleaner than any other country period. There is no such thing as man-made global warming. And our fight to cripple our country with carbon taxes is insane and suicidal. Coal has been burned in this country since before it was a country. Companies like this mine supply the tax base and job base that keeps towns and states alive. No town dies because the local market or hardware store closes. But the end of big business in this country will be our death. I work in the oil and gas industry and have no economic gain from this mine. But my friends, neighbors and fellow Coloradans do. And I support them.	Thank you for your comment
Social and Economic	Lissa Freeman	The Deserado Mine and Bonanza Power Plant employs numerous jobs in our community, in addition to, the low cost power it provides to Moon Lake Electric, which in turn provides for the operation of schools , businesses, and our homes. These obvious benefits to not include the royalty taxes paid to the community, along with their support of the Rangely District Hospital.	Thank you for your comment
Social and Economic	Grant J. Earl Moon Lake Electric Assn., Inc	Because of Deserado's productivity and safety record, it is then possible for the Bonanza Power Plant to supply low-cost power to Moon Lake Electric that, in turn, is passed on to area residents and businesses. We feel approval of the lease is vital to the economic well-being of our area and urge you to approve Deserado's application.	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
Social and Economic	Beckey Hume	Our local mill-levy tax that was approved for the Rangely community to support the new hospital was also successful partially because of the desire to provide for the workers at the coal mine as well as the other energy related industries in our community. We are looking forward to this new hospital in providing additional services for our community. As far as our local school district, I work as the Administrative Assistant to the Jr./Sr. High Principal in Rangely. Our schools are ready for growth. We can provide for more students and with the possibility of additional employment by the Deserado Mine we are encouraged to move forward to prepare to provide for these students and families. We also want to note that the school district, and the community also appreciates the low cost electricity from Moon Lake Electric partially due to the coal mine. With the costs of so many other things increasing, food, fuel, equipment we appreciate the fact that our electricity stays very affordable. The idea that this new coal lease could provide employment and energy for another 25 years is exciting. With the oil and gas industries we have seen our economy go up and down. The coal mine has provided a more steady, continuous work force.	Thank you for your comment
Social and Economic	CLUB 20	Not only will this additional lease continue to provide jobs for rural Northwestern Colorado, but it will also allow for continued employment of those working at the Bonanza Power Plant Southeast of Vernal, Utah. The economic impact of the Deserado Mine is significant to the local economy as it creates jobs across two states; the mine generates significant local taxes and Blue Mountain Energy practices a spirit of philanthropy in the local community. The impact of the Deserado Mine is also important to the State of Colorado in its generation of taxes as well as to the Federal Government in terms of royalty tax payments. The mine owner, Deseret Power, has demonstrated a strong record of safety, productivity and responsibility in the development of this important energy resource. Approval of the Lease by Application of Blue Mountain Energy will allow production of coal in the same manner as is currently underway, the expansion is not expected to generate greater emissions and it is expected that there will be very little surface disturbance across the more than 3,000 acres in the lease application.	Thank you for your comment
Social and Economic	LaDel Laub Dixie Escalante	Dixie Escalante is the Cooperative owned electric utility serving 16,000 plus consumer/owners in Southwestern Utah and Northwestern Arizona. These consumers rely on the clean energy produced by the Bonanza	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
	Electric	Power plant which is supported by the coal derived from Blue Mountain Energy. Blue Mountain Energy has applied for an additional coal lease from the BLM that will allow for continued operations at the Deserado Mine. If approved, this lease is expected to allow for further mining operations of the sole customer of Blue Mountain Energy, the 458MW, Bonanza Power Plant. The consumer/owners of Dixie Escalante are made up of retired people, business both large and small, farmers and ranchers, and publically owned facilities such as schools, all who rely on this energy source to sustain their livelihoods, which in turn drive the economy.	
Social and Economic	Colorado State Senator Jean White	Blue Mountain Energy has taken considerable action towards operating an environmentally friendly mine with commendable safety record and nationally-recognized productivity standards. Additionally, they have been successful in providing low cost power to local residents and businesses, which has helped foster economic growth in the region. During these tough economic times, it is also important to note that the mine employs nearly 300 residents in its day to- day operations, playing a major role in the reduction of the local unemployment rate to roughly 6%. With energy costs rising throughout the nation, it is imperative that we make every effort to aid and develop local energy providers throughout this region. As the demand for power rises and our nation continues to grow, it is important that we look within our state as a primary source for not only ourselves, but our neighbors as well.	Thank you for your comment
Social and Economic	Associated Governments of Northwest Colorado	The extension of the lease will enable the continued operation of the Bonanza Power Plant which is absolutely necessary for the well-being of the region being served. Jobs, schools, tax's, etc. are dependent upon the successful operation of Bonanza and the REA Moon Lake Electric. Our region is heavily dependent and has benefited from the success of said operations. Failure to approve said addition would have long reaching and deep negative impacts not only to Northwestern Colorado but Utah as well. Many, many users of the power, in turn, are powerful economic engines in their own right, such as mining, energy producers, the College, the hospital, the Agriculture operations --- the list goes on and on. One simply cannot picture the bleak ripple effect that would occur should the lease not be issued.	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
Social and Economic	Howard W. Earnest	The benefits of this lease extension far outweigh the negligible impacts that may occur. The employment of the miners and those in the many supporting businesses add to the viability of the area. Coal is and will continue to be a vital source of fuel for the generation of electricity for this nation for the foreseeable future. As the FONSI points out, the impacts associated with this lease are NOT significant. The fact that the lease is an extension of an area already leased by Blue Mountain Energy, supports the logic of continuing to extract this coal resource utilizing the existing mine and infrastructure with minimal additional disturbance associated with the expanded area.	Thank you for your comment
Social and Economic	Michael Medina	Deserado mine has been a steady source of well-paying jobs for Rangely and Meeker, Co as well as Vernal, Utah. This mine also has a positive economic impact as far away as Denver and Grand Junction, Co and Price, Ut due to equipment purchases and rebuilds from various vendors in these locations. BME has been strong supporter of the local community,	Thank you for your comment
Social and Economic	Colorado Mining Association	The mine employs 165 workers in Colorado and coal mining is vitally important to the economy of that region, which is not well diversified and depends heavily on mineral extraction. The company's most recent tax contribution for 2011 exceeded $10 million. Federal coal leasing is important to Colorado. As the attached coal production and employment report shows, Colorado coal producers paid $59 million in royalties for coal mined on federal leases in 2011. That amount exceeds the coal royalty payments of every state with the exception of Wyoming. Half of those royalties or nearly $30 million are returned to the state of Colorado to help fund the public school system. And the coal mined in Colorado is of exceptionally high quality and low in sulfur; as a result, Colorado is a leading state in terms of producing coal used by utilities to meet the stringent requirements of the Clean Air Act. It is important to allow for the continued production of our nation's most abundant and affordable energy fuel.	Thank you for your comment
Social and Economic	Eric Popham	Getting this new coal lease would provide a great job from people for many years to come and provide cheap electricity to the area.	Thank you for your comment
Social and Economic	Russell George, President,	Deserado Mine, Blue Mountain Energy and Deseret Power have long been good corporate neighbors in this community and have been a strong partner with Colorado Northwestern Community College in our	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
	Colorado Northwestern Community College	mission to provide career technical training and higher education in this corner of Colorado. The college and the mine have worked together constantly in assuring that the college is available to provide necessary and appropriate training and education for the mine's employees. The mine and its employees who are our friends and neighbors are regular supporters of the college's activities and efforts as we serve as Northwestern Colorado's gateway to higher education. In addition to the various contributions the mine and its employees make regularly to the college, it is especially important to note that last year the mine and its operations provided more than $355,000 in tax support for education through the mill levies for the school district and the college district. Without these funds, it would be difficult or impossible for either institution to survive and perform its service to our children and citizens. Without a doubt the mine and its associated companies are an integral part of our culture and community in Northwest Colorado. We have every reason to believe that the finding in the preliminary environmental assessment of "no cumulative environmental effects" is correct and supportable by the facts. The long performance record of this mine as an environmentally safe and sound industrial member of this community supports this confidence. Moreover, the portion of the tax base contributed by the mine and the available power generated from this mine's coal production are integral and necessary to our quality of life all across this part of the country.	
Social and Economic	Rio Blanco County Commissioners	Blue Mountain Energy plays a significant role in our county's economy both as a taxpayer and as an employer. The approval of these leases will help ensure the continuation of their operations and their significant contribution to the economy of the west end of the county. Their employees and families are an important part of the Rangely community and have been so for decades. The commissioners anticipate that there may be opposition to these leases based on concerns over the contribution to atmospheric CO2 that is the result of coal-fired electrical power generation. We feel that such opposition is shortsighted and counterproductive. Support for research focused on carbon capture and sequestration will better serve our nation's need for clean affordable electrical power. The recent development of extensive natural gas reserves in our country has encouraged some groups to advocate the decommissioning of coal-fired power plants. The commissioners think	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		these gas reserves will be better utilized as a cleaner burning vehicle fuel as we develop CNG vehicle technology and infrastructure. The United States can make meaningful progress towards energy independence in an environmentally responsible manner through appropriate use of both of these resources, of which we now have vast reserves.	
Social and Economic	Elaine C. Urie	Deserado Mine is a critical business which provides many families with jobs (270), as well as a huge local tax supporting entity for Rangely and Rio Blanco County. It would be devastating to this area's economy if they were denied the additional coal lease that they are requesting. I have been on the Financial Committee for the Town of Rangely for 6 plus years and very aware of the struggle to survive within budgets. Dealing with the unfunded mandates of government entities is a great stress on small communities, if we were to lose this tax base it could leave us with a grave future - trying to find more areas to cut back on which really are not available. This Mine supplies low cost power to Moon Lake Electric which in turn helps Rangely and Rio Blanco County with affordable power supplied to already economical overstressed schools, businesses and homes.	Thank you for your comment
Social and Economic	Matthew G Scoggins	As a local businessman and resident I have found the mine to be very supportive of our community and integral part of our economy. I have heard zero complaints in the community about environmental issues and I believe they run a clean operation.	Thank you for your comment
Social and Economic	Nedra N. Sandels	It would offer many benefits to the community, especially the education of the young people in the county.	Thank you for your comment
Social and Economic	Stewart Welding & Machine Inc.	Blue Mountain Energy doing business as Deserado mine, is an extremely important business for western Colorado! This business supports many aspects of our communities. We as a county need this mine to be in operation for as long as possible.	Thank you for your comment
Social and Economic	Rick Morill	this mine is nothing but an economic benefit to this area. We are talking 200 plus jobs and many other economic benefits. It's a safe mine. We supply a power plant which is one of the cleanest coal burning plants in the country. If this doesn't go through it's going to bring an end to this mine much sooner than necessary and cause economic hardships.	Thank you for your comment
Social and Economic	Mark Scanlon	the mine provides high paying jobs which support the local communities. The coal that is mined also helps to meet our country's	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		energy needs and provides royalty revenue to the federal government which helps to reduce our nation's deficit.	
Social and Economic	Brad Casto	Without these people in our community it would be very detrimental to our economic impact. In 2011 Deserado Mine paid just over $10 million in taxes. Four million of these dollars were property taxes and $200,000 of that went directly to the construction of a new hospital in Rangely. Without this income our local entities such as our fire department, hospital, rec center, town, county, special districts would all have to have spending cuts and mostly cuts in personnel to save money. It would be very detrimental to our community. Alternative energy sources are being developed but as a nation and a community we can't depend on renewable energy to provide 100% of our requirements. Coal accounts for nearly 40% of the nation's electrical energy. Failure to continue to develop coal as an energy source could put our community and our country in severe disadvantage providing inefficient cost effective -- severe disadvantage in providing efficient cost-effective power for our future. Coal is an abundant energy resource in the United States and is needed to move -- and is needed to move our country toward energy independence.	Thank you for your comment
Social and Economic	Peggy Rector	It's vital that we keep the Deserado Coal Mine for the economic development and I will also go further and say environmentally they have been excellent neighbors to our community.	Thank you for your comment
Social and Economic	Brad Rouse	Coal lease should be granted for economic purposes	Thank you for your comment
General	CEA	The BLM should stop referring to this process as “leasing.” Clearly, once mined, the coal will be burned and turned into carbon dioxide (and many other pollutants) and not returned in any form resembling the densely packed and reduced form of carbon that has been created by the Earth’s geologic forces over millions of years	Definition of a mineral lease is an agreement between a property owner and another party who is allowed to explore and extract minerals that are found on the property for a stated time. The property owner receives payments based on the value of the minerals that are extracted. In other words, a mineral lease is a right given to use land for the purpose of exploration for a particular period of time or indefinitely upon payment of royalties to the landowner.
General	CO-FORCE	The single bidder coal auctions that BLM sponsors have resulted in sales	All of Blue Mountain Energy’s Deserado Mine coal

Issue or Resource	Commenter	Comment Summary	Comment Response
		at cost far lower than privately owned coal resources that cannot all be accounted for by quality. Blue Mountain Energy will be free to export the coal to foreign countries at huge profits	production is dedicated to the Bonanza Power Plant. The amount of recoverable coal within the coal lease by application and the distance to the nearest commercial rail (Greater than 70 miles) eliminates the potential for other domestic or foreign markets.
General	Western Rio Blanco Metropolitan Recreation & Park District	Resolution of the Board Of Directors of the Western Rio Blanco Metropolitan Recreation & Park District supporting the expansion of the Deserado Mine, a wholly owned subsidiary of Blue Mountain Energy.	Thank you for your comment
General	Rangely Rural Fire Protection District	Resolution of the Board of Trustees of the Rangely Rural Fire Protection District Board Of Directors supporting the expansion of the Deserado mine, a wholly owned subsidiary of Blue Mountain Energy.	Thank you for your comment
General	Vickie Kurrasch	I am in support of the Deserado Mine expansion	Thank you for your comment
General	Mike and Aubrey Janowicz	We support the coal lease for the expansion of the Deserado Mine. We feel it has and will continue to benefit our community	Thank you for your comment
General	R.J. Harrington, Jr	Thank you for conducting the Environmental Assessment for this lease. My children, who are 8 & 6 years old, wanted me to write you to express their dismay that the coal is not being left in the ground. The harm that burning coal does to their planet must end and they would like us adults to convert to clean, renewable energy to power our lives.	Thank you for your comment
General	Vanessa Popham	Deserado provides a stable living for our family, we need his job to support our family.	Thank you for your comment
General	Edward L. Ballegeer	I would like the lease to be approved.	Thank you for your comment
General	George Fortunato	I would like to see this approved. As a long time resident the mine has been a good neighbor to the community.	Thank you for your comment
General	Milton Delaney	I think that the expansion of the mine is a great opportunity for those families to continue raising thier Children. It is my hope that when the Community supports local business or even a Multi-Nation Org. That those Businesses and Multi-National Org. Support the Communities	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		where ever they might be.	
General	Uintah County Commission	Based on the Preliminary No Significant Impact (FONS I) and the preliminary Environmental Assessment, Uintah County would ask that the Lease-by Application be granted.	Thank you for your comment
General	Amy Ganser	Deserado Mine is our family's only income! My husband has worked at the mine now for 13 years. We support keeping the mine open! If it were to 'fall' it would not only hurt us, but our whole community! We have 3 young children and we enjoy the environment they are being raised in. It's safe. No crime. We do not want to have to relocate and start over! Please save my husbands job	Thank you for your comment
General	Todd Low	We the people of this community, and many communities across the western states greatly benefit from this particular coal mining operation here in Rangely by the Deserado Mine. I myself am not a coal miner, however my industry is directly related to their business. I work in the large power industry which involves providing power from Rangely, all the way to California with many communities in between receiving the benefit of reliable electrical service. This decision to expand their operation would not only affect the direct employees of Blue Mountain Energy, but also Deseret Power and Moon Lake Electric which are also local. As I mentioned before above, their are many other stops along the western United States in which the power generated by the coal from this operation are taken. I understand that the BLM is out there across the nation, with the task to "manage" public lands. You know as well as I, and every other human this side of the Mississippi River, that the decisions that directly affect our "public lands" are made by personnel that have never even taken the time to leave Washington D.C. They do not even understand what goes on out in the real world, they just look to make the environmental groups happy and secure money in their pockets. This is the real world out here. It is folks like these coal miners, power companies, and oil/gas personnel that make this world turn. I once read a bumper sticker that said something like this, "if you like lights in your house, you can thank a coal miner". How true of a statement is that. Without the coal industry, I would not have the job of supplying cheap, reliable power for every American to enjoy. The environmental groups are so opposed to every kind of job we have in this region: coal, oil, and gas. They are to ignorant to realize that without	Thank you for your comment

Issue or Resource	Commenter	Comment Summary	Comment Response
		these three commodaties, they would have no power, houses, vehicles, heat, cooling, etc..... Everything in this world takes these products either to make things or supply us in some way or another.	
General	Cindy and Steve Balloga	Support for continuous mining of Colorado coal and expanding the coal leases determined to anticipate no cumulative environmental effects, specifically Deserado Mine and others located in or near Rio Blanco County.	Thank you for your comment
General	George Smitman	In this period of expensive energy costs it is necessary to expand known energy resources. Imported energy only profits hostile traders. It is the patriotic duty of BIM managers to approve any, and all, Rio Blanco county energy sources for our local benefit and our commercial services with several western states.	Thank you for your comment
General	Board of Directors of the Rio Blanco Water Conservancy District	Resolution of the Board of Directors of the Rio Blanco Water Conservancy District supporting the expansion of the Deserado mine, a wholly owned subsidiary of Blue Mountain Energy.	Thank you for your comment
General	The Morgan Family	Two adults, two small children absolutely votes yes on expanding the mine.	Thank you for your comment
General	Clayton Gohr	Because of the finances that I receive from the Deserado Mine I have raised a family and been able to pay taxes and help the community.	Thank you for your comment

Appendix C:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946

RECEIVED
DOI BLM CO 110
MEEKER, CO 81641
2012 JUL 31 PM 12: 36

IN REPLY REFER TO:
ES/GJ-6-CO-08-F-0006
TAILS 06E24100-2012-F-0105

Paul D, Please share with appropriate staff and add to admin. record. Thanks for, Terry 8/2

July 26, 2012

Memorandum

To: Field Manager, Bureau of Land Management, White River Field Office, Meeker, Colorado

From: Western Colorado Supervisor, Fish and Wildlife Service, Ecological Services, Grand Junction, Colorado

Subject: Blue Mountain Energy Coal Lease Application COC74813

On July 6, 2012, the U.S. Fish and Wildlife Service (Service) received your June 19, 2012, request for formal Endangered Species Act (ESA), section 7 consultation for Blue Mountain Energy's proposed expansion of the Deserado Coal Mine to include the Red Wash Lease Tract. The expansion would occur under a lease-by-application and would include approximately 3,154 acres of Federal coal reserves located in Rio Blanco (2,838 acres) and Moffat Counties (316 acres), Colorado, approximately seven miles northeast of Rangely, Colorado. Coal reserves to be explored and developed underlie Federal lands managed by the Bureau of Land Management (BLM).

The project would entail approximately 56 acres of surface disturbance associated with exploration drilling, degas, nitrogen injection wells, and mine ventilation shafts. New roads would be constructed as necessary to provide access to exploration sites and mine facilities. Development would likely begin in late 2012 and continue through approximately 2032. Additional details and maps are provided in the Biological Assessment for this project.

The BLM determined that the proposed action may affect, but is not likely to adversely affect the black-footed ferret (*Mustela nigripes*). This determination was based primarily on the limited presence of largely marginal habitat for the species in the project area (approximately 130 total acres of white-tailed prairie dog towns less than 49 acres in size); minimal estimated disturbance of prairie dog towns for the species over the life of the project (2 to 3 acres); and the lack of black-footed ferret sightings in the project area and surrounding area since 2001, when reintroduction efforts began. Therefore, the species would be highly unlikely to occur in the action area. We also understand that spatial avoidance, timing limitations, and similar measures will be applied by the BLM on a site-specific basis to minimize effects on prairie dog towns.

Based on this information, we concur with your determination for this species, based on discountable and insignificant effects.

An estimated 512 acre-feet of water will be depleted per year as a result of the project. The Service has determined that water depletions adversely affect the Colorado River endangered fish, including the bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*), and their critical habitats. The estimated depletion would result in no net increase in water use or demand from that addressed under previous consultations (ES-6-RO-95-F-001-GJ286) for Blue Mountain Energy mining operations in the project area. Therefore, further section 7 consultation is not required for this aspect of the project.

Related to water quality impacts, we concur with your determination that the proposed project may affect, but is not likely to adversely affect the Colorado River endangered fishes or their critical habitat. This determination was based on water quality monitoring data which indicate that mining operations in the area, both past and ongoing, have not contributed to selenium, mercury, or other contaminant concentrations in the White River. Selenium and mercury concentrations appear to be static or declining since mining began in the area.

The BLM determined that the proposed action would have no effect on the federally listed *Physaria congesta* (Dudley Bluffs bladderpod), *Physaria obcordata* (Dudley Bluffs twinpod), Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*). Therefore, section 7 consultation is not required for these species.

Finally, you determined that the project would have no effect on Federal candidate species including the North American wolverine (*Gulo gulo luscus*), yellow-billed cuckoo (*Coccyzus americanus*), and greater sage-grouse (*Centrocercus urophasianus*). Federal candidates for listing as threatened or endangered have no legal protection under the ESA of 1973, as amended, although it is within the spirit of the ESA to consider project impacts to these species. However, section 7 consultation is not required for these species.

This concludes Section 7 consultation for the proposed project. As provided in 50 CFR §402.16, re-initiation of consultation is required if: 1) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not previously considered, 2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not previously considered, or 3) a new species is listed or critical habitat designated that may be affected by the action.

Thank you for your interest in conserving threatened and endangered species. If we can be of further assistance, please contact Charlie Sharp at (970) 243-2778, extension 18.

CSharp:BLMWRFOBlueMountainEnergyCoalLeaseApplicationCOC74813.docx:072512:KM

U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
DOI-BLM-CO-110-2012-0023-EA

BACKGROUND

Blue Mountain Energy (BME) submitted a Lease-by Application (LBA) for issuance of a federal coal lease identifying approximately 3,154.76 acres of previously un-leased federal coal. To process an LBA, the Bureau of Land Management (BLM) must evaluate the environmental and socioeconomic impacts of leasing the Federal coal in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969. The BLM prepared Environmental Assessment (EA), DOI-BLM-CO-110-201-0023-EA, to evaluate and disclose environmental effects of leasing the Federal coal included in the LBA.

By law and regulation, the LBA process is an open, public, competitive sealed-bid process. Bidding at any potential sale is not restricted to the applicant. In order for BLM to award and issue a coal lease, the highest bid received must meet or exceed fair market value of the coal as determined by BLM's economic evaluation.

Blue Mountain Energy submitted the LBA because the area is adjacent to their permitted Deserado Mine and a logical extension of the existing mine. The Federal coal can be mined using Deserado Mine facilities, equipment, and employees. The coal in the 3,154.76 acre LBA would be bypassed if not leased due to its isolated location and geologic conditions. Alternatives in the LBA EA that were analyzed in detail assume that the successful bidder would use similar mining techniques as that of the applicant.

FINDING OF NO SIGNFICANT IMPACT

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that the Proposed Action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

Context

This project is a site-specific action directly involving underground mining of federal coal reserves in a 3,154.76 acre lease tract and surface impact to approximately 56 acres of BLM land. Direct surface impact will be limited to temporary drill pads with facilities and associated light use roads required for mine infrastructure associated with underground development. The land disturbance associated with this project would not change the existing character of the local landscape. There would be socioeconomic benefits related to continued mining and coal production at or near current levels that are currently being mined. Maximum short-term surface disturbance including temporary light-use access roads would be approximately two percent of the surface area of the lease area.

Affected interests for this project may include special use and grazing permittees, and people who use the area for recreation. Effects would be short-term and minor. No short or long term significant impacts on affected interests are expected in the regional context.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse.

Beneficial and adverse effects of the Proposed Action were described in the EA. Mitigating measures to reduce potential short-term impacts to soils, distribution of invasive non-native species, sensitive plants, migratory birds, wildlife, cultural and paleontology are identified. The project would make a minor contribution to small amounts of airborne particulate matter during drilling and release of methane and other greenhouse gases (GHGs) during the mining process. Benefits of the project would be continuation of gainful employment in the coal mine, and contribution to the supply of coal to meet the nation's energy demands. None of the environmental effects discussed in the EA are considered significant.

2. The degree to which the Proposed Action affects public health or safety.

Post leasing operations would have to comply with Mine Safety and Health Administration (MSHA) and Colorado Division of Reclamation, Mining and Safety (DRMS) mining permit requirements. Potential risks to public health and safety would be low and would occur over limited, brief periods.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

Cultural resources are discussed in Item 8 below. The following are not affected because they are not present near the project area: Park lands, Areas of Critical Environmental Concern, Wilderness Areas, Wild and Scenic Rivers, wetlands, and Prime or Unique Farmlands.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.

This decision for leasing additional coal reserves and its effects are not unique. Coal leasing decisions have been made in this area for over 75 years. There is no scientific controversy over the nature of the impacts. There is some uncertainty about the long-term cumulative effects of GHGs and how these effects can be managed. Reclamation and revegetation has been successful in the past and can continue to be successful. The potential intensity of effects on the quality of the human environment is minimal.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

The project is not unique or unusual in this area. Coal mining has been ongoing in the area for over a century and the Department of Interior has been leasing coal in the area for over 75 years. Developed coal resources from the LBA would be solely for continued consumption of the existing Bonanza Power Plant. The BLM has been making decisions on similar actions for many years and has experience implementing similar actions in this area. There are no predicted potential effects to the human environment that are considered to be highly uncertain or to involve unique or unknown risks.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
This decision is not precedent setting. The Proposed Action was considered in the context of past, present and reasonably foreseeable actions. This decision is not unusual and significant cumulative effects are not predicted. This decision does not entail any known issues or elements that would create a precedent for future mining or mine venting decisions. The decision does not represent a decision in principle about a future consideration. Documentation in an EIS is not required.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.
The Proposed Action was considered in the context of past, present, and reasonably foreseeable actions. Because methane emission rates are roughly correlated with coal production rates, and because coal production under the Proposed Action is expected to be consistent with current production levels, the rate of methane emission is not expected to differ greatly from current emission rates. Accurately predicting the degree of impact any single emitter of GHGs may have on global climate change or the changes to biotic and 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. Therefore, significant cumulative effects are not predicted.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
No potential impacts to districts, sites, highways, or structures have been identified within the LBA. Lease by Application does not authorize any new construction or surface disturbance, therefore it has no potential to effect historic properties, but it gives the lessor rights to the underground coal. A mine plan revision will be required to add the COC74813 lease, a 3,154.76 acres area, to the current mine plan. Consultation with the Colorado State Historic Preservation Office (SHPO) will be done prior to approving the mine plan revision, to comply with Section 106 of the National Historic Preservation Act (NHPA).

All nitrogen injection holes, ventilation shafts, degas holes, and any other surface disturbance associated with the lease are subject to compliance requirements under Section 106 of the NHPA, and will undergo separate standard cultural resources inventory and evaluation procedures at the time of proposal. If historic properties are located during any subsequent field inventories in this area, and the BLM determines that mine related activities will adversely impact the properties, projects will be redesigned, and/or mitigation will be identified and implemented in consultation with the SHPO.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.
The BLM prepared a Biological Assessment (BA) in compliance with Section 7(c) of the Endangered Species Act (ESA) and submitted to the BA to FWS in June 2012 to commence formal consultation of the potential impacts to federally listed, proposed, and candidate endangered and threatened species and addressed water depleting activities associated with the project. Cumulative water depletions from the Colorado River Basin are considered likely to jeopardize the continued

existence of the endangered Colorado River fishes and result in the destruction or adverse modification of their critical habitat.

The results of the BA are as follows:

- Depletions would remain within BME's 512 acre-feet per year Recovery Program allowance and the Proposed Action may affect but is not likely to adversely affect endangered Colorado River fishes or adversely modify designated critical habitat.
- The Proposed Action would have no measurable effects on black-footed ferret re-introduction or recovery efforts within this experimental Non-essential population area.
- The proposed action is expected to have no effect on Dudley Bluffs twinpod, and Dudley Bluffs bladderpod, Canada lynx, North American wolverine, Mexican spotted owl, yellow billed cuckoo, and greater sage-grouse.

The FWS Biological Opinion (BO) is in concurrence with the BA.

10. Whether the action threatens a violation of federal, State, or local law or requirements imposed for the protection of the environment.

Neither the Proposed Action nor impacts associated with it are known to violate any laws or requirements imposed for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL: Kent E. Walter
Field Manager

DATE SIGNED: 02/01/2013