

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
DOI-BLM-CO-S050-2013-0027 EA**

June 2013

Sunset Trail Area Coal Exploration Plan

Gunnison County, Colorado

**U.S. Department of the Interior
Bureau of Land Management
Uncompahgre Field Office
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Appendix A Lease Stipulations

**U.S. Department of the Interior
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Montrose, CO 81401**

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-S050-2013-0027 EA

CASEFILE/PROJECT NUMBER: COC-1362 and COC-67232

PROJECT NAME: Sunset Trail Area Coal Exploration Plan

LEGAL DESCRIPTION: Township 14 South, Range 90 West, portions of Sections 10, 11, 14 and 15, 6th Prime Meridian, Gunnison County, Colorado.

APPLICANT: Ark Land Company on behalf of Mountain Coal Company.

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

Ark Land Company (ALC) submitted a coal exploration plan for the Sunset Trail Area (Ark Land Company, 2013) on behalf of Mountain Coal Company (MCC) to the Bureau of Land Management (BLM) Colorado State Office on April 3, 2013 per 43 Code of Federal Regulations (CFR) 3482.1(a) based on rights granted in their lease agreements under Part 1, Section 2 including the right to drill for coal deposits in the lease. The plan addresses exploration to evaluate the coal reserves and quality of coal seams within the Mesa Verde Formation in federal coal leases COC-1362 and COC-67232.

The BLM reviewed the exploration plan, and deemed it complete on April 23, 2013.

Current reserves at the West Elk Mine are estimated to last 9 to 11 years. Exploration according to the plan would provide additional data regarding the amount and quality of coal on the federal leases. The data obtained would be used to determine whether any additional mineable reserves are in the lease modification areas of federal coal leases COC-1362 and COC-67232.

1.2 Background

In 2009, ALC and MCC requested modifications to increase the size of their federal coal leases. The federal mineral estate is managed by the BLM; the surface estate is managed by the Grand Mesa, Uncompahgre, and Gunnison National Forest (GMUG). GMUG consented to BLM's modifications of the existing leases. The GMUG evaluated the impacts in an environmental impact statement (FEIS) (USFS, 2012a), then issued a record of decision (ROD) (USFS, 2012b) consenting to the lease modifications. The BLM was a cooperating agency on the FEIS and relied on these documents in evaluating the impacts of this action. Subsequently, the BLM issued their own ROD and authorized the lease modifications.

The lease modification action did not authorize mining activities or surface uses (such as exploration drilling). Those activities require review and authorization in a separate permitting process to be evaluated under the Colorado mine permitting regulations for their own merits (USFS, 2012a).

This environmental assessment (EA) completed under the National Environmental Policy Act (NEPA) includes the analysis of site-specific surface disturbance associated with the proposed on-lease exploration plan, including access roads, drill pads, and reclamation. The effects disclosed in this EA are tiered to (40 CFR 1508.28) and include the direct, indirect, and cumulative impacts described in the FEIS as Alternative 3 (to modify both leases under the Colorado Roadless Rule) (USFS, 2012a). The effects discussions in the FEIS are incorporated by reference, and summarized in this EA.

1.3 Location

The proposed exploration area is located approximately 11 miles east of Paonia, Colorado and seven miles southeast of Somerset, Colorado. The area lies within a portion of Township 14 South, Range 90 West, 6th Prime Meridian, in Gunnison County. The exploration area is south and east of the West Elk underground coal mine (**Figure 1**).

1.4 Purpose and Need

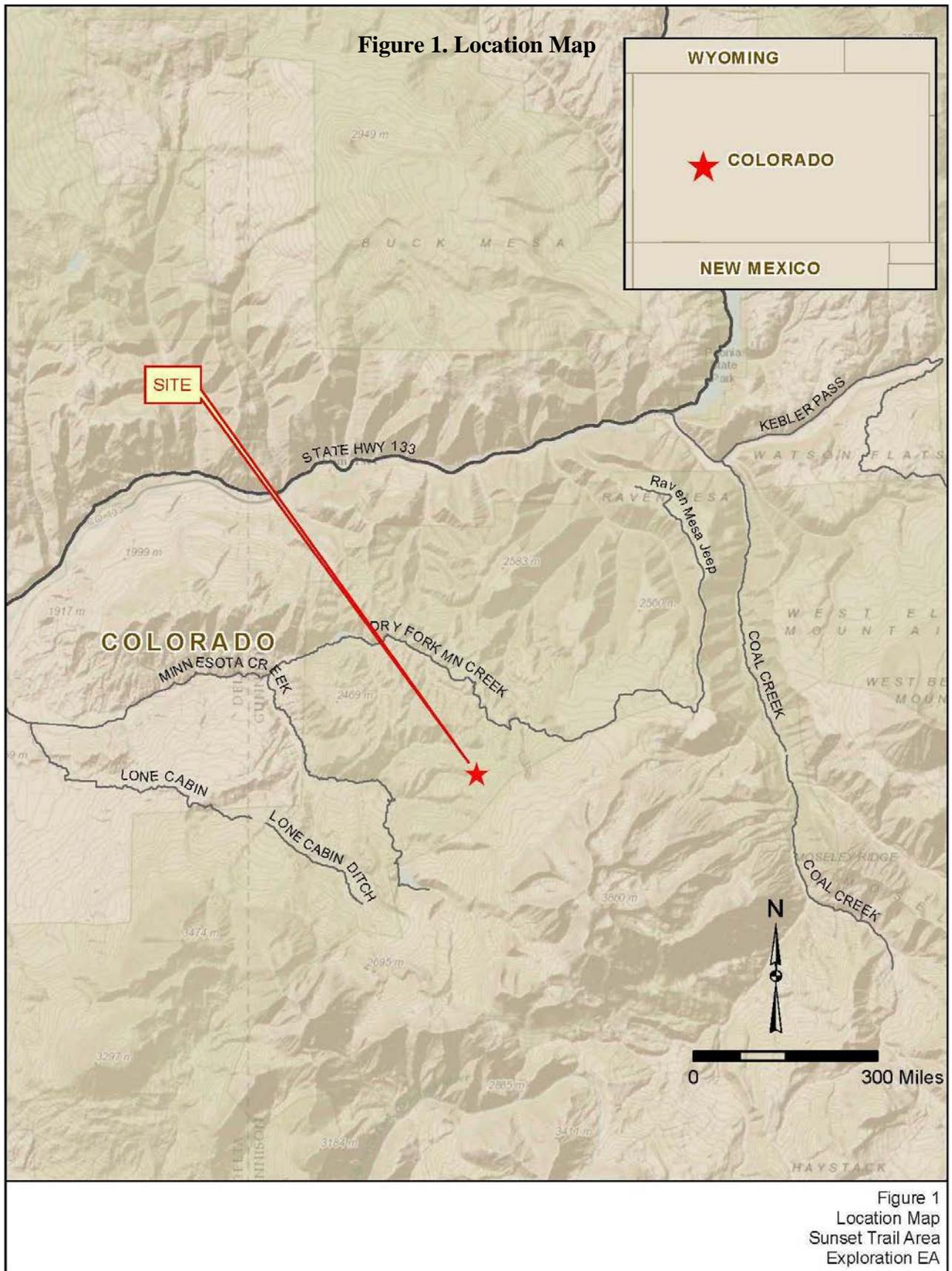
The BLM's purpose is to decide whether to approve the exploration plan and allow the activities to occur on the coal leases, consistent with lease rights granted, in the manner described in the plan, disapprove the plan with a statement of conformity, or approve the plan with additional conditions (43 CFR 3482.2(a)(1)), if needed to minimize impacts.

The BLM's need is to respond to an application to explore the coal deposits in accordance with the federal lease agreements, NEPA, the Mineral Leasing Act, as amended by the Federal Coal Leasing Amendments Act of 1976, and the Federal Land Policy and Management Act of 1976. The BLM also needs to fulfill management obligations regarding the federal coal resource by obtaining information which allows the BLM to verify the recoverable reserves.

1.5 Cooperating Agencies

The US Forest Service, GMUG is a cooperating agency in this analysis. The Forest Service is the surface management agency, but does not have a NEPA decision to make for this project. According to 43 CFR 3482.2(a)(1), the BLM must have concurrence of the surface managing agency for the approval terms of the exploration plan. The regulations also provide opportunity for the Forest Service to determine the adequacy of the reclamation bond amount. To that end, if the approval terms of exploration plan are acceptable, the Forest Service will provide concurrence and will review the reclamation bond amount to determine its adequacy.

Forest Service regulations state that this type of action is not subject to appeal (36 CFR 215.12(h)) or objection (36 CFR 218.1).



2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternatives

The proposed action and no action alternatives are described in this section along with a comparison of actions. This section also includes a discussion of alternatives considered but not carried forward for detailed analysis.

2.2 Proposed Action

The proposed action is for the BLM to approve the Sunset Trail Area Coal Exploration Plan to conduct coal exploration activities. The exploration plan was submitted by ALC on behalf of MCC. ALC will conduct the exploration activities. Exploration consists of drilling, obtaining e-logs down-hole, and collecting core samples for testing.

Table 1 identifies the sites, locations, temporary access road lengths, and estimated disturbed acreage of the 10 exploration sites proposed. The area is within existing coal leases held by MCC (C-1362) and ALC (COC-67232). Drilling locations and access are shown on **Figure 2**. Exploration activities are scheduled to be completed within two years, 2013 and 2014. Exploration and reclamation activities will be completed by October 31 each year.

Access road upgrades and new construction should begin one to two weeks prior to moving the drill rig onto the site. The construction, drilling, and reclamation activities will take an average of 16 days per hole.

Roads needed for access will generally have a travel width of 14 feet wide. For construction road width will generally be 30 to 45 feet. For the analysis, an average of 35 feet was used, which will disturb 4.24 acres per mile. Drill pads will, at a maximum, disturb 0.46 acres per pad (**Table 1**).

Table 1. Disturbance Acres on National Forest

Drill Site	Year	Location (Township, Range, Section)	Feet of Road on National Forest	Acres of Road Disturbance on National Forest	Acres of Pad Disturbance on National Forest
Road to SST-4/5	2013		4134	3.32	0
SST-1	2014	T.14S., R.90W., NE1/4 SE1/4 Sec. 10	2,087	1.68	0.46
SST-2	2013	T.14S., R.90W., SE1/4 NE1/4 Sec. 15	1,725	1.39	0.46
SST-3	2014	T.14S., R.90W., SE1/4 NW1/4 Sec. 14	778	0.63	0.46
SST-4	2013	T.13S., R.90W., NW1/4 NW1/4 Sec. 14	2,226	1.79	0.46
SST-5	2013	T.14S., R.90W., SE1/4 SW1/4 Sec. 11	3,573	2.87	0.46
SST-6	2013	T.14S., R.90W., NE1/4 SW1/4 Sec. 11	3,085	2.48	0.46
SST-7	2014	T.14S., R.90W., NE1/4 SW1/4 Sec. 14	3,045	2.45	0.46
SST-8	2014	T.14S., R.90W., NW1/4 NE1/4 Sec. 14	5,055	4.06	0.46
SST-9	2014	T.14S., R.90W., SE1/4 SE1/4 Sec. 11	2,770	2.23	0.46
SST-10	2014	T.14S., R.90W., NW1/4 SE1/4 Sec. 14	2,692	2.16	0.46
Totals			31,170	25.06	4.60
Total National Forest Disturbance Acres					29.64

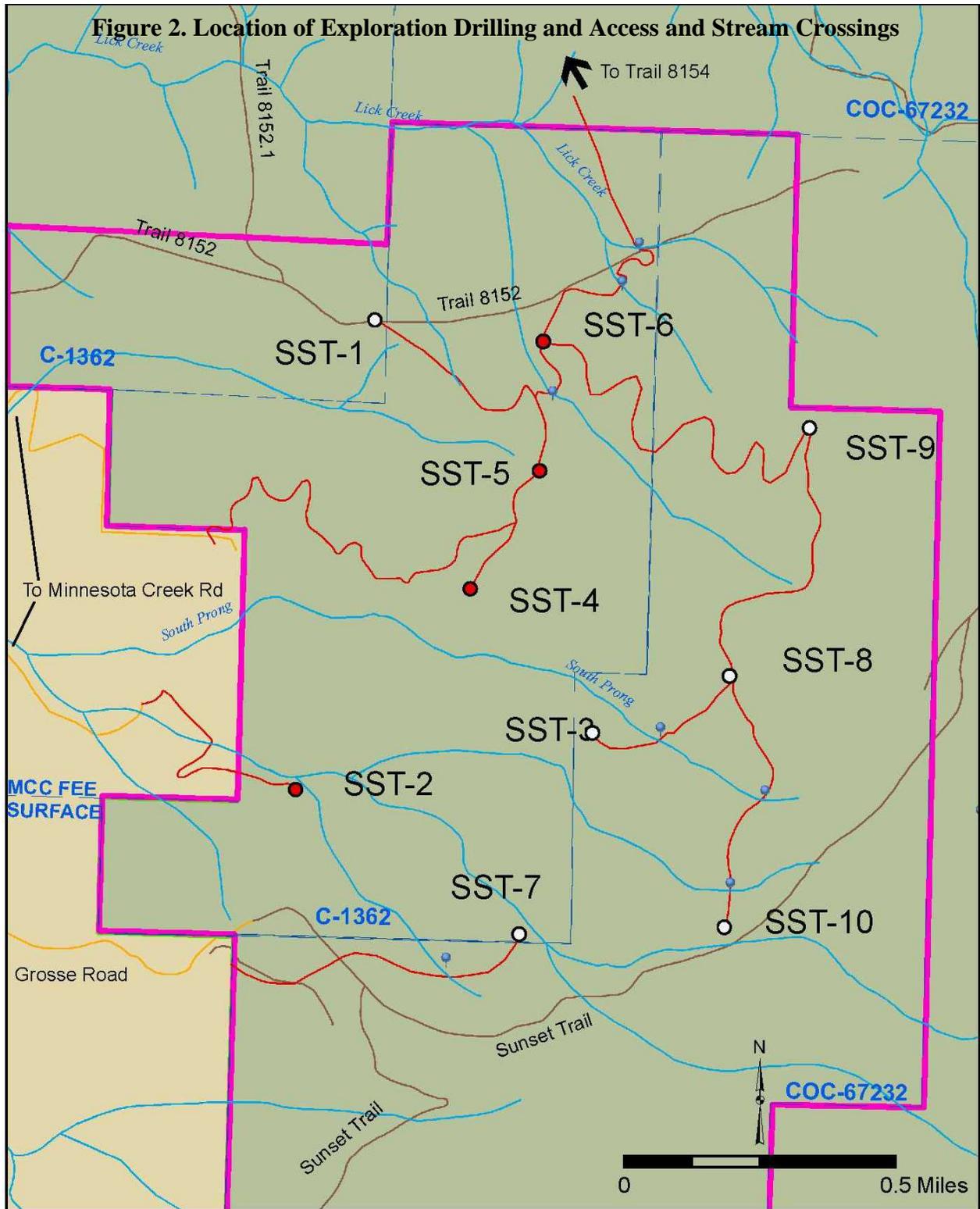


Figure 2. Location of Exploration Drilling and Access and Stream Crossings

- | | | |
|--------------------------------|-----------------------|---|
| — Temporary Roads | ● 2013 Borehole | Sunset Trail Area
Coal Exploration Plan EA
Location and
Stream Crossings |
| — Lease Boundaries | ○ 2014 Borehole | |
| — Ark Land Co Exploration Area | ● Stream Crossings | |
| — Trails | ■ USDA FOREST SERVICE | |
| — Roads | ■ PRIVATE | |
| — Streams | | |

Drilling activities such as pad construction, road grading, or watering, will not be scheduled on opening weekend of big game hunting seasons to avoid user conflicts.

There will be no stationary fuel storage on site. Fuel will be brought to the equipment by truck. If left on-site, the fuel truck will be parked on a prepared drill pad where drainage is contained on the pad and mud pit.

Exploration activities will follow any required stipulations attached to the leases and lease modifications (ROD) (USFS, 2012b) (see **Appendix A**).

2.2.1 2013 Exploration Drilling Program

Four exploration drill holes (SST-2, SST-4, SST-5, and SST-6) are planned to be drilled in the 2013 field season (see **Table 1**). These four holes are within the lease modification area of COC-1362. Temporary roads and drill sites will be developed (**Figure 2**). Upon completion of the 2013 field season and subsequent data review, ALC will determine if completion of the exploration plan with the remaining six exploration drill holes is warranted for 2014. If ALC determines further exploration drilling is not warranted, unless the drill sites and access roads will be used as future methane drainage well (MDW) locations, they would then be reclaimed. If further exploration is warranted, the edges of temporary roads would be reclaimed to a maximum 14 foot width running surface. Per USFS stipulations, waterbars and stormwater control devices will be placed at the end of the field season, even if the road will be used again in the next season. Culverts will be removed to allow unhindered natural flow events over the winter and spring. Site SST-6 may be kept open as a staging area for 2014 activities.

2.2.2 2014 Exploration Drilling Program

If the results of the coal resource exploration from 2013 are favorable, exploration activities will continue during 2014 at sites SST-1, SST-3, and SST-7 through SST-10.

Drainage control on temporary roads used for the previous year's exploration program will be reestablished.

2.2.3 Pre-drilling Activities

On-site inspection of proposed drill sites and access routes was conducted with representatives from appropriate regulatory agencies to discuss site-specific concerns. A road was relocated to improve stream crossings and avoid steep slopes.

State, Forest Service, and BLM regulatory personnel will be notified at least 48 hours before any construction or drilling equipment is mobilized. An authorized representative of ALC will supervise all construction and drilling activities. A copy of the exploration permit and all pertinent permit documents will be available from the ALC representative for inspection. Any proposed changes in the exploration plan after permit approval will be reviewed and approved by the appropriate regulatory agencies before changes take effect.

2.2.4 Road Construction

Existing roads will be used whenever possible and movement of equipment across undisturbed land will be kept to a minimum. New roads will be constructed only when necessary and only as the drilling program progresses. A projected maximum 14-foot road running width will be employed except in locations such as curves, where more width would be needed for the drill rig. Maximum

road width disturbed area would be 40 feet. The analysis uses an average of 35 feet of disturbance width.

The drill sites have been located so temporary roads are as short and disturb as little ground as possible and still provide reasonable access and appropriate coal data. Topsoil will be stockpiled and redistributed at reclamation. Erosion control structures such as water bars will be installed as required and will be constructed in accordance with regulations and stipulations. Any culverts placed will be removed at the completion of the project.

2.2.5 Drill Site Construction

Drill sites will be 0.46 acres of disturbance or smaller. Drill site sizes and dimensions were reviewed and field fitted to topography with the aid of Forest Service representatives.

A bulldozer (D-7 or smaller) will clear brush and small trees from the drill pad. Topsoil will be removed and stockpiled on the upslope side of the drill pad and remain undisturbed during drilling. Up to one foot of topsoil thickness will be salvaged and stockpiled at the disturbance site with a "TOPSOIL" sign clearly marking the pile. Drill sites will be leveled by grading.

Slurry (mud) pits will be made on the drill pad. One or two pits will be excavated at each site depending upon depth of drill hole and projected water requirements. The mud pit(s) will be approximately 10 feet wide, 30 feet long, and 6 feet deep. Subsoil and rock materials will be stockpiled within the drill pad clearing and used to refill the mud pits at reclamation.

Erosion and transportation of sediment will be minimized through stormwater controls. Using the existing roads or trails will minimize disturbance. Where possible, the existing vegetation will be left to reduce the need for sediment control. Using existing level areas for drill pads will minimize surface disturbance.

Salvaged soils will be placed adjacent to the drill pad with appropriate sediment control devices surrounding the down slope portion of the soil stockpile. A similar sediment control device will be placed on the downslope side of the subsoil/rock stockpiles from the slurry (mud) pits.

2.2.6 Methods and Equipment for Drilling

Rotary drilling and coring on each site will be completed using a rubber-tired, truck-mounted drilling rig. To aid in the reduction of surface disturbances, ALC will use the smallest possible drill rig that can be used safely and successfully. Support equipment may consist of one or two water trucks, one rig-up truck, a pipe truck, flatbed trailer, one or more air compressors and/or boosters, a supply trailer, and three 4-wheel drive pickups.

Water sources for drilling operations will be nearby streams, where MCC owns the water rights, or stock watering ponds. Water from streams will be either pumped or trucked to the sites. If pumped, pipes (1-inch polyvinylchloride or 2 to 3-inch hose) will be laid alongside the roads and undisturbed ground surface. If trucked, about two 4,000-gallon water truck trips would be needed per site. The use of these water sources will be approved by the agency or party owning the water rights. In the event stock ponds are used, minimum water levels will be established to ensure sufficient water is left for stock and wildlife. Removal of sediments and other maintenance of stock watering ponds within proximity to the exploration sites will provide improved water storage for drilling operations and long term use for wildlife and livestock. Sediments removed from ponds will be placed on the pond embankment, wheel-rolled, and seeded. Water consumption is estimated at 5,500 to 8,500 gallons per drill hole (0.017-0.026 acre feet). No water storage tanks will be needed.

Overland flow of the drill fluids will be directed into the slurry pit as will most precipitation runoff. Upon drill hole completion, one truck mounted geophysical logging unit will be used at each hole location.

Modification of Drill Holes to Surveillance for Water Levels

Exploration hole SST-2 may be converted to an E-Seam water monitoring site if a mineable thickness of E-Seam coal is present. Construction of the water monitoring well will be delayed until a determination on mineability of the coal is made. The necessary well permit will then be obtained from the Colorado Division of Reclamation, Mining and Safety (CDRMS) for the well installation.

It is not anticipated that significant water-bearing bedrock or aquifers will be encountered. The Mesa Verde Formation is known to contain limited water bearing sandstones, and no known bedrock aquifers exist. If significant quantities of water are encountered, the appropriate regulatory officials will be notified and if directed, the hole may be completed as an additional water monitoring well.

2.2.7 Drill Hole Abandonment Methods

The hole plugging method described in 43 CFR 3484.1(a), states that each open hole will be plugged with cement from bottom to 50 feet above the uppermost thick coal seam and from 50 feet below to 50 feet above any aquifers encountered in the hole. The remainder of the hole is to be filled with an approved completion mud, gel, cuttings, or cement to within 10 feet of the surface. A 10 foot cement surface plug would be set, and an appropriately labeled monument marker to be cemented into the surface plug. For monitoring wells, the surface casing will be cut off at or below the level of the soil surface. ALC may elect to fill the hole in its entirety with cement.

2.2.8 Access

Primary routes used to access the exploration area are Highway 133 to the West Elk Mine entrance and the private and National Forest administrative road through Sylvester Gulch to National Forest System Road (NFSR) 711. Approximately 0.4 miles of NFSR 711 will be used to access the Sylvester Gulch Road.

Secondary access may use the Gunnison County Road 710 to Lick Creek. Access is controlled through a gate at the bottom of the Lick Creek Road on MCC's fee surface to the exploration area. Additionally there may be access via NFSR 711 and the spurs 711-2C to the proposed sites and 711-2A. Refer to Map 1 for road identification.

NFSR 711 has been maintained by MCC as an access road to exploration drill holes and methane drainage well sites for 17 years. Upgrades and improvements to the road include gravel base, culverts, ditches, gates, and drainage control structures. Ongoing maintenance is a condition of MCC's Road Use Permit.

2.2.9 Reclamation Plan

Final reclamation activities will follow the completion of the hole as soon as possible. Upon completion of all drilling activities at each site; debris, trash, and drilling equipment will be removed. Mud pit(s), once sufficiently dry, will be filled with stored subsoil and compacted. Remaining subsoil will be redistributed on and around the drill pad to the original contour. Stored topsoil will be distributed evenly over the disturbed pad area.

The entire drill pad area will be re-seeded using the following seed mix (Table 2).

After seeding, the cleared brush will be redistributed over the drill pad area to act as natural mulch. This method has proven successful for the revegetation of previous drill sites.

Sediment control measures include slash, silt fence, erosion control blankets, or straw wattles.

Newly developed access roads will be graded to the original contour as closely as possible and re-seeded.

The drill pad and access roads reclamation procedure outlined above will apply only to newly disturbed areas. Existing roads, as identified in the Gunnison National Forest’s Travel Management Plan (USFS, 2010), will be left in a condition equal to or better than that observed upon ALC’s entry into the area.

After reclamation, newly constructed access roads to certain drill sites may be blocked and closed to vehicle entry at the GMUG or surface owner’s request. Alternate road closure methods may be employed where practical after review with the Forest Service representative.

Table 2. Paonia Ranger District Seed Mix

Habitat Type	Grass Species Mix	Seeds/Pound	Pounds/Acre
Mountain Shrub	Mountain Brome	90,000	5
	Prairie Junegrass	2,315,400	4
	Western Wheatgrass	126,000	6
	Indian Ricegrass	188,000	4
	Cicer Milkvetch	145,000	1
		Total	
Aspen/ Spruce/ Fir	Slender Wheatgrass	160,000	3
	Mountain Brome	90,000	6
	Canby Bluegrass	926,000	3
	Idaho Fescue	450,000	2
		Total	

This seed will be 99 percent pure live seed (PLS) and hand broadcast.

2.3 No Action

Under the no action alternative, the Sunset Trail Area Coal Exploration Plan will not be approved. Based on MCC’s assessment, not exploring the coal condition will result in an inability to acquire the information necessary to develop a sufficient mine plan addressing the additional leased area and; therefore, it is highly unlikely that mining will occur in these specific areas. For the purposes of the analysis, no action would result in no mining on the lease modification areas. Under no action, current reserves at the mine will be depleted in 9 to 11 years, followed by mine closure. The mine life will not be extended approximately three years. The leases provide the right for MCC to conduct exploration, therefore, no action is inconsistent with lease rights granted.

On-going land uses will continue including continued recreation and grazing. The land would continue to be managed according to the amended Land and Resource Management Plan (USFS, 1983) standards, goals, and guidelines.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

An alternative may be considered during the environmental analysis process, but not analyzed in detail. The agency must identify those alternatives and briefly explain why they were eliminated from detailed analysis (40 CFR 1502.14). An alternative may be eliminated from detailed study if:

- it is ineffective (does not respond to the purpose and need for the proposed action);
- it is technically or economically infeasible (considering 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 Resource Management Plan (RMP));
- its implementation is remote or speculative;
- it is substantially similar in design to an alternative that is analyzed; or
- it would result in substantially similar impacts to an alternative that is analyzed.

Alternatives specific to this EA that were considered, but that will not be analyzed in detail, are discussed below.

2.4.1 Use Helicopters to Transport Drill Rig

An alternative analyzing drilling using a drill rig that can be placed on site by a helicopter drill rig to avoid construction of access roads was considered; however, this alternative was not carried forward for detailed analysis because it is ineffective and technically infeasible. The geology of the exploration area is such that the aggregate material is not structurally sound; therefore, the drill hole must be cased. In order for the holes to be properly cased, the initial diameter must be wide enough to allow for casing and core extraction. This is not feasible to do with a drill rig that can be transported by helicopter because they are too small and not powerful enough. Furthermore, this alternative would not fulfill the purpose and need for the proposed action because it would not allow the exploration to be accomplished if the holes collapse before the core sample can be obtained.

2.4.2 Analyzing Only the Holes Proposed to be Drilled During 2013

An alternative was suggested by Wild Earth Guardians that would include only the four holes that MCC proposes to drill during 2013. This alternative was not carried forward for detailed analysis because it is ineffective as it would not provide the necessary information on the coal. This alternative would not meet the purpose and need of the proposed action because it would not effectively explore the coal leases consistent with the lease rights granted.

2.5 Scoping and Identified Issues

The issues related to exploration are similar to those raised during scoping completed for the FEIS and its preceding EA. Issues raised were addressed in the FEIS and site specific impacts are disclosed in this EA. Additionally, the BLM, USFS, and OSM internally scoped the proposed action and identified issues as shown in **Table 3**. Wild Earth Guardians submitted comments as part of the appeal withdrawal from the Interior Board of Land Appeals and in comments submitted in April 2013.

This project was added to the Uncompahgre Field Office's online NEPA register on April 29, 2013.

2.6 Plan Conformance Review

2.6.1 Forest Plan and Forest Service Regulations

The amended Land and Resource Management Plan (Forest Plan) dated September 1991 (USFS, 1991), for the GMUG National Forests made provisions for exploration subject to the application of the coal unsuitability criteria established in 43 CFR 3461. The Forest Plan was reviewed in relation to the proposed action (FEIS, Section 1.7) (USFS, 2012a). The proposed action is consistent with the Forest Plan.

The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the GMUG National Forest. The management area prescriptions in the Forest Plan for the lands where exploration drilling would occur are:

- 6B –Livestock grazing. Emphasis is on optimizing forage capability for livestock grazing. Other resource activities may occur, but should harmonize and blend with the natural setting.
- 5A – Big Game winter range in non-forested areas. Winter range is managed to produce wildlife habitat capability greater than or equal to 90 % of potential for a mid-seral or better condition. Compatible resource activities may occur.
- 9A–Riparian / Aquatic Ecosystems. Emphasis is on the management of all the components of aquatic/riparian ecosystems to provide healthy, self-perpetuating plant communities, acceptable water quality standards, and habitats for viable populations of fish and wildlife, and stable stream channels and still water body shorelines. Mineral activities may occur but must minimize disturbance to riparian areas and initiate timely and effective rehabilitation of disturbed areas and restore them to a state of productivity comparable to that before disturbance.

The proposed action conforms to the overall guidance given in the Forest Plan, which encourages environmentally sound energy and mineral development. None of the lands were found to be unsuitable based on the criteria. No additional restrictions or need for stipulations were identified as a result of applying the criteria (USFS, 1983).

This activity is consistent with the GMUG Forest Plan, the Gunnison National Forest Travel Management Plan (USFS, 2010), and Forest Service Handbook (FSH) 2800.

2.6.2 BLM Resource Management Plan

The Proposed Action is subject to, and has been reviewed for, conformance with the BLM Uncompahgre Basin RMP (43 CFR 1610.5-3, 1617.3) as amended (BLM, 1989). The Standards for Public Land Health were adopted by BLM Colorado State Office in 1997 and amended the Uncompahgre Field Office RMP (and all others).

Decision Number/Page: ROD, page 9.

Decision Language: Standard Management Direction is that “Federal Coal Estate will be identified as acceptable for further leasing consideration”.

Decision Number/Page: Management Unit 7, pg. 21.

Decision Language: Management Unit 7: “The management unit will be managed for both existing and potential coal development. Development of existing coal leases will continue and non-leased federal coal will be identified as acceptable for further coal leasing consideration with a minimum of multiple-use restrictions. Activities and land uses that are consistent with maintaining existing coal operations and the potential for coal development will be permitted.”

The Proposed Action is consistent with current land management planning.

2.6.3 Other Related NEPA Documents

This EA tiers to the FEIS for Federal Coal Lease Modifications COC-1362 & COC-67232 (USFS, 2012a) and ROD (USFS, 2012b) and the BLM’s ROD (BLM, 2012). The analysis of direct,

indirect, and cumulative effects for the coal leasing action and reasonably foreseeable future action as disclosed for Alternative 3 in the FEIS are incorporated by reference where the information was used within each resource analysis section below.

2.6.4 Lease Stipulations

Stipulations attached to the leases are included in **Appendix A**. The proposed action is in compliance with the lease stipulations.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the human and natural environmental resources that could be affected by the proposed action and presents comparative analyses of the direct, indirect, and cumulative effects on the environment. A description of the past, present, and reasonably foreseeable actions is at the end of this section.

Elements specified by statute, regulation, executive order, or the Standards for Public Land Health, and other resources, are described and analyzed in this section. **Table 3** lists the elements considered in this section; those that could be impacted are brought forward for analysis. Elements that are not applicable or not present will not be discussed further. Any element present, but not affected by the proposed action or no action alternative will not be analyzed in this document; the reasons for no impact will be stated. Environmental impact analysis was based upon available data and literature from state and federal agencies, peer-review scientific literature, and resource studies conducted.

Table 3. Resources Affected

Elements	Not Applicable or Not Present	Present, But No Impact	Applicable & Present; Brought Forward for Analysis
Air Quality			X
ACEC	X		
Wilderness	X		
Colorado Roadless Areas			X
Wild and Scenic Rivers	X		
Cultural	X ¹		
Native American Religious Concerns	X		
Farmlands, Prime/Unique	X		
Soils			X
Vegetation			X
Invasive, Non-native Species			X
Threatened and Endangered Species			X
Migratory Birds			X
Wildlife, Terrestrial			X ²
Wetlands & Riparian Areas and Aquatic Habitats			X
Floodplains	X		
Water Quality			X

Table 3. Resources Affected

Elements	Not Applicable or Not Present	Present, But No Impact	Applicable & Present; Brought Forward for Analysis
Wastes, Hazardous or Solid		X ³	
Environmental Justice	X		
Socio-Economics			X
Access and Transportation			X
Cadastral Survey	X		
Realty Authorizations	X		
Range Management			X
Forest Management	X		
Fire	X		
Noise	X		
Recreation		X ⁴	
Visual Resources			X
Geology and Minerals	X		
Paleontology	X		
Law Enforcement	X		

1 No cultural resources were discovered in the inventories conducted on the Sunset Trail Exploration Area in 2011 and two separate times in 2012. (ERO, 2012). (ERO, 2013)

2 Terrestrial wildlife are addressed through the analysis on threatened and endangered, sensitive, and management indicator species and migratory birds.

3 See Section 2.2 for a description of fuel storage that provides secondary containment. MCC has a spill prevention, containment and counter measures (SPCC) plan.

4 There are no recreations facilities or areas within the analysis area.

3.1 Cumulative Effects Analysis

The FEIS (USFS, 2012a) describes and assesses the impacts on each resource from the reasonably foreseeable mine plan if mining were to occur on the exploration area. The disturbance that is assumed to occur for the analysis in the FEIS (75 acres) is greater than the disturbance effects from the proposed exploration (30 acres), therefore, the cumulative impacts from possible future mining is incorporated by reference, and not repeated in detail in this EA.

Past, present, and reasonably foreseeable actions were identified in Section 3.37 of the FEIS (USFS, 2012a). Below is information on projects that have changed since the FEIS was published.

3.1.1 Reasonably Foreseeable Future Actions

Activities that are speculative or for which there is no site-specific description are not considered reasonably foreseeable.

Underground coal mining would continue in the North Fork Valley. In addition to existing coal leasing and exploration activities, the following are reasonably foreseeable future actions:

- Oxbow has submitted a lease modification of the East Elk Creek lease (COC-70615), requesting to add approximately 364 acres of NFS lands to their existing lease.

- Bowie Resources, LLC (Bowie No. 2 Mine) applied for a lease by application adjacent to current leases to the north under private, national forest and public lands and are in NEPA analysis.

Pending oil and gas activity includes 19 total permits.

- 6 shale well permits;
- 8 coal-bed methane wells; and
- 5 coal mine methane wells.
- Total estimated disturbance based on current permits – approximately 130 acres (based on 6.8 acres of disturbance per well).

In addition, the Forest Service is currently reviewing a proposal for Petrox LLC, involving up to 50 gas wells on 24 drilling locations within the Somerset Unit. This Master Development Plan has not yet been released for scoping.

SG Interests I, Ltd (SG) has proposed a 150 gas well Master Development Plan to develop mineral leases they hold within the Bull Mountain Unit located in Gunnison County, Colorado. SG is proposing to drill and produce 150 wells from approximately 41 individual well pads and associated infrastructure. Approximately 50 percent of the wells are targeting coalbed methane production and the other 50 percent will be exploring other potentially productive natural gas zones encountered by drilling into other geologic zones in the area of the Bull Mountain Unit.

The Sunset Trail Area Coal Exploration Plan could contribute minor cumulative impacts. None of them will exceed the impacts stated in the FEIS (Section 3.37 starting on page 193). Impacts resulting from the proposed exploration could add incrementally to impacts from the other activities discussed above, resulting in a low-level increase in noise, human presence, soil erosion, invasive weeds, wildlife habitat loss, and vegetation loss or conversion. Cumulative impacts associated with coal mining activities in the area were analyzed in greater detail in the Uncompahgre Basin RMP Environmental Impact Statement (BLM, 1988), as well as in the North Fork Coal EIS (USFS and BLM, 2000).

3.2 Air Quality

3.2.1 Affected Environment

Based on a review of the U.S. Environmental Protection Agency (EPA) reported non-attainment areas (EPA, 2012), the project area is in an attainment area for all reported state and federal air quality standards. There are no non-attainment areas in Gunnison County or any of its adjoining counties. The closest Class I airsheds to the project area include the West Elk Wilderness (located about 0.25 miles southeast of the project area), and the Black Canyon of the Gunnison National Park (located about 18 miles southwest of the project area).

The Clean Air Act requires the EPA to set standards for air pollutants to protect the public health and welfare. Criteria pollutants are those for which national ambient air quality (NAAQ) standards have been set; non-criteria pollutants do not have set NAAQ standards. Criteria pollutants include: ozone (O₃), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and carbon monoxide (CO). There are standards for two categories of particulate matter—one for

suspended particles less than 10 micrometers in diameter (PM₁₀) and one for fine particles less than 2.5 micrometers in diameter (PM_{2.5}).

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

Direct and Indirect Effects

Drill pads, access road construction, and drilling would result in minor short-term increases in criteria and non-criteria pollutants from combustion engines and soil disturbance. About eight project-specific vehicles would be on-site (within the exploration area) at any one time. The vehicles would not be concentrated, but instead would be completing different operations at different locations. Vehicles include both heavy- and light-duty trucks and engines with no other existing emission sources. For these reasons, increases in criteria and non-criteria pollutants will not result in an exceedance of any hourly, 8-hour average, or daily NAAQ standards or Colorado ambient air quality (CAAQ) standards.

Fugitive dust from soil disturbing activities such as road and drill pad construction could result in an increase in suspended particulates. Drill pads and roads would be reclaimed after exploration drilling operations are completed to minimize impacts from fugitive dust. All impacts to air quality would be minor, short-term and temporary.

An emissions inventory was prepared to show the total amounts of criteria and greenhouse gas pollutants that are likely to be emitted (**Table 4**). With respect to both the criteria pollutants and greenhouse gas (CO₂, CH₄, and N₂O) emissions, the levels emitted on an annualized basis are not significant and do not warrant any further analysis when considered against regional emissions and recent monitoring data. Gunnison County emissions from the most recent EPA National Emissions Inventory (EPA, 2008) have been included for comparison.

Table 4. Emissions Inventory

	Pollutants (Tons)								
	SO ₂	PM ₁₀	PM _{2.5}	CO	NO _x	VOCs	CO ₂	CH ₄	N ₂ O
Total Emissions 2013	0.06	9.24	1.11	1.44	3.16	0.31	208.94	0.01	0.00
Total Emissions 2014	0.08	12.09	1.49	2.14	4.7	0.46	307.89	0.02	0.01
Gunnison County Emissions ¹	79	2,739	1,202	18,562	1,309	3,108	229,433	389	1.12

¹ EPA 2008 National Emissions Inventory (EPA, 2008)

Cumulative Impacts

For air quality, the cumulative impacts analysis area is defined as the North Fork Valley. The proposed action would result in minor, short-term air quality impacts. Oil and gas exploration, operation and development could result in similar air quality impacts. Cumulatively, air quality impacts will be minor. All cumulative air quality impacts would be short-term and minimal.

There is no indication from available data (monitoring near the mine, see the FEIS page 76) that any violations of ambient air quality are occurring. It is therefore not expected that there will be any appreciable effect on criteria pollutant levels. Predicted future emissions are expected to be essentially the same as current emissions.

3.2.2.2 No Action Alternative

Under the No Action alternative, there would be no project-related air quality impacts.

3.3 Colorado Roadless Areas

3.3.1 Affected Environment

Roadless areas within Colorado are managed under provisions of the Colorado Roadless Rule (36 CFR 294.4, Subpart D) that went into effect on July 3, 2012. The exploration area is located in the Sunset Colorado Roadless Area. The Sunset Colorado Roadless Area is approximately 5,800 acres. The Colorado Rule accommodates the continued operation of coal mines within the North Fork coal mining area, which includes the Sunset Colorado Roadless Area. This area allows for the construction of temporary roads for exploration and coal mining activities. Tree-cutting incidental to the management activity not otherwise prohibited is also allowed under the Colorado Rule.

A description of the nine roadless characteristics is detailed in the FEIS (starting on page 170). In summary:

Four roadless characteristics are present and impacts on them will be analyzed. These four are: 1) high quality or undisturbed soil, water, and air; 2) habitat for threatened, endangered, proposed, candidate and sensitive species and for those species dependent on large, undisturbed areas of land; 3) primitive, semi-primitive non-motorized and semi-primitive motorized classes of dispersed recreation; and 4) naturally appearing landscapes with high scenic quality. The other five characteristics either do not exist or are not expected to change.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Direct and Indirect Effects

High quality or undisturbed soil, water, and air

Soil will be disturbed. Erosion and subsequent impacts on water quality will be minimized through design and post activity reclamation. Air quality impacts may include road dust and emissions from equipment. Adverse impacts from increased sediment delivery to streams are not expected. All impacts would be short-term, as the project would be completed in two years.

Habitat for threatened, endangered, proposed, candidate and sensitive species and for those species dependent on large, undisturbed areas of land

The acres of disturbance would be a small portion (30 acres) of the Sunset Colorado Roadless Area, so no impact to overall diversity of plants or animals are likely. Restoration requirements will minimize long term impacts on habitat.

Primitive, semi-primitive non-motorized and semi-primitive motorized classes of dispersed recreation

Temporary roads may increase foot access during the project (these roads would be closed to public motorized access). Roads will be reclaimed following use.

Naturally appearing landscapes with high scenic quality

Temporary roads and drilling pads could diminish natural appearing landscapes during the two–year project life, depending on location and position of disturbance and view point. The scenic integrity in the area is moderate to moderate/high.

Cumulative Effects

Effects of past activities on the roadless character are reflected in the existing condition of the Sunset Colorado Roadless Area. Ongoing and reasonably foreseeable actions will continue to have similar effects. Although an additional 30 acres of disturbance may occur within the 5,800-acre roadless area, the overall character of the Sunset Colorado Roadless Area will not change due to reasonably foreseeable actions.

3.3.2.2 No Action

The No Action alternative would not have beneficial or adverse impacts on the Sunset Colorado Roadless Area or the roadless characteristics that occur there.

3.4 Soils

3.4.1 Affected Environment

Soils information and technical data were taken from the following soil survey completed for the project area (Cryer & Hughes, 1997). The survey characterized and described the soils overlying that portion of the project area. This survey contains soil maps depicting the aerial extent of the soils delineated and map unit descriptions, typical pedon descriptions, and interpretation tables which were used to develop the text below. No site-specific soil baseline studies were conducted.

Soils in the exploration area are described as six map units (**Table 5**). The map unit name, percent coverage, dominant soil series and attendant percent map unit composition, relative depth, hazard classifications (water erosion, shrink swell, and mass movement), and considerations as described in the soil survey are shown in Table 3.6 in the FEIS, beginning on page 98 (USFS, 2012a).

Table 5. Acres of National Forest Disturbance by Soil Type and Characteristic

Soil	Water Erosion Hazard	Disturbed Acres
124 - Coberly – Falcon, dry complex, 0 -15 percent slopes	Low	0.1
158 - Herm - Fughes - Kolob family complex, 25 to 40 percent slopes	Low To High	0.7
170 - Needleton - Scout families complex, 5 to 40 percent slopes	Low To Moderate	2.2
183 - Scout - Needleton families complex, 40 to 65 percent slopes	Mod. To High	5.4
188 - Taterheap - Papaspila complex, 5 to 40 percent slopes	Low To High	2.1
200 - Wetopa - Wesdy complex, 5 to 65 percent slopes	Low To High	19.1
Total		29.6

Acres may not add up due to rounding.

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

Direct and Indirect Effects

Approximately 30 acres would be disturbed from construction of drilling pads and access roads. Soils affected and their potential for water erosion are shown in **Table 5**. Sections 2.2.4 and 2.2.5 describe the erosion control measures that will be used to avoid erosion or sedimentation. Once the project is complete, reclamation will restore the area and prevent long term soil erosion problems. Based on the lease stipulations, the planned erosion control, and requirements for reclamation, there are no anticipated indirect long term soil impacts from surface disturbances (FEIS, page 102) (USFS, 2012a).

Cumulative Effects

Additional surface facilities and temporary roads may be proposed and approved on lands in and surrounding the exploration area. These additional surface disturbing activities would affect the soil resource by displacing soils at specific locations. The topsoil and subsoil is stockpiled and reserved for reclamation. Contemporaneous reclamation techniques will be used, thus replacing/re-using the soils on the site as soon as the location is no longer needed.

Few adverse impacts on soils have been observed during subsidence and reclamation monitoring at nearby mines. Reclamation of surface use sites, including methane drainage drill sites, exploration drill sites and associated temporary roads, has been generally successful in three to five years following reclamation. Reclamation typically includes re-grading the surface to approximate original contour, redistributing topsoil, and revegetating with a specified seed mix. The area of surface disturbance in the region will temporarily increase during construction, returning to conditions similar to pre-disturbance following reclamation. Through proper topsoil management, native seeding, and an aggressive noxious weed abatement program, mines in the North Fork Valley have been very successful in maintaining soil viability.

3.4.2.2 No Action

No additional soil disturbance would occur due to selection of the No Action alternative.

3.5 Vegetation

3.5.1 Affected Environment

As identified in the FEIS, the principal vegetation type has been identified as aspen (**Table 6**). No threatened, endangered, or candidate plants have been identified in the exploration area (FEIS, page 120) (USFS, 2012a). Wetland and riparian vegetation is discussed in Section 3.11.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Direct and Indirect Effects

The majority of the area to be disturbed by road and drill pad construction currently has aspen for the vegetation cover (**Table 6**). Mountain shrub and mixed Engelmann spruce/alpine fir make up

Table 6. Vegetation Types in Disturbed Area

Cover Type	Disturbed Acres
Mountain Shrub	2.2
Aspen	25.6
Spruce-Fir	1.9
Total	29.6

the remaining cover. Aspen and mountain shrub are not considered commercial timber types. The spruce-fir type may require merchantable sized trees to be removed.

These disturbed acres would be considered a long-term vegetation loss.

After the project is completed, the roads and drilling pads will be reclaimed as described in Sections 2.2.4 and 2.2.5.

Cumulative Effects

The cumulative effects analysis area for vegetation is the Mount Gunnison Lynx Analysis Unit (LAU) boundary and totals 47,904 acres of National Forest. Approximately 2,550 acres of vegetation have been disturbed through past activities within the past ten years, associated primarily with big game wildlife habitat improvement projects, with the majority occurring in oak and juniper habitats. These acres reflect some re-treatment of areas due to multiple entries for a single project, as well, so that less than 2,550 acres of the landscape have been actually treated.

Other federal actions which have occurred in the past and are expected to occur in the future which impact vegetation include additional wildlife habitat improvement projects, permitted livestock (currently cattle) grazing. Water development (reservoirs, ditches) occurs on both federal and private lands in the area, including three irrigation reservoirs totaling about 30 surface acres.

On private lands, single family habitation, ranching including hay production, mining activities, and livestock grazing are the primary uses within the area.

The addition of 30 acres of disturbance within the cumulative impacts analysis area is minor.

3.5.2.2 No Action

No additional vegetation will be disturbed due to selection of the No Action alternative.

3.6 Invasive, Non-Native

3.6.1 Affected Environment

There is no site-specific information available regarding invasive, non-native plants or noxious weeds in the area that would be disturbed. There are known populations of Canada thistle, musk thistle, houndstongue, and hoary cress (white top) near the project site.

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

Direct and Indirect Effects

Approximately 30 acres of ground-disturbing activities may create opportunities for infestations of noxious weeds. Canada thistle, musk thistle, houndstongue, and hoary cress (white top) seeds can be air-born, vehicle-born or transported by wildlife and livestock. Any area where the existing vegetation is removed and bare soil is left exposed creates a potential site for noxious weed infestations (FEIS, page 157) (USFS, 2012a).

Cumulative Effects

Noxious weeds already occur in the area from past activities. Cumulative impacts would be similar to direct and indirect effects, with the creation of disturbed areas that may become infested with noxious weeds.

3.6.2.2 No Action

The no action alternative would not create additional disturbed areas that may become infested with noxious weeds.

3.7 Threatened, Endangered, Candidate, and Sensitive Species

3.7.1 Affected Environment

Canada lynx is the only federally listed species that has the potential to be found in the exploration area. Other listed species do not have habitat and do not occur in the analysis area (Table 3.9 of the FEIS, page 126) (USFS, 2012a) and will not be addressed further.

Lynx habitat in the analysis area is mostly primary habitat with some secondary habitat. More information on lynx habitat requirements can be found in the FEIS beginning on page 126 (USFS, 2012a).

Since the FEIS was published, the U.S. Fish and Wildlife Service (FWS) issued a proposed rule (February 4, 2013) to list the Distinct Population Segment (DPS) of the wolverine that occurs in the contiguous U.S. as a threatened species under the ESA (78 FR 7864). Also on February 4, 2013 the FWS published a proposed special rule under Section 4(d) of the ESA outlining the prohibitions necessary and advisable for the conservation of the wolverine (78 FR 7864). This proposed Section 4(d) rule would prohibit take of wolverine from trapping, hunting, shooting, etc., while allowing incidental take associated with management activities such as dispersed recreation, timber harvest, mining etc., if those activities are conducted in accordance with applicable laws and regulations (78 FR 7890). In the same federal register document the FWS also proposed to establish a nonessential experimental population (NEP) area for the wolverine in the southern Rocky Mountains of Colorado, northern New Mexico, and southern Wyoming. The FWS is not proposing critical habitat at this time.

Although occasional sightings of wolverine occur and are reported on the Forest, there had been no documented occurrences locally or in Colorado since 1919 until the recent arrival of M56, an individual male who arrived in 2009 from Wyoming and apparently remains in the north-central portion of the state (Colorado Division of Wildlife Website, Species of Concern, Wolverine, 2013).

Water sources for drilling are owned by MCC and will have no effect on water depletions for Colorado River Fishes. The water source is considered to be non-tributary waters by the U.S. Fish and Wildlife Service, and does not exceed a depletion amount consulted upon in the biological assessment (BO ES/GJ-6-CO-99-F-033-CP062).

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

Direct and Indirect Effects

Lynx

The roads and pads will result in complete loss of habitat within their footprint (30 acres) for the life of the project. After the exploration is complete, these areas will be re-contoured and revegetated with grasses and forbs for erosion control in the short term, and are expected to revegetate to types consistent with their pre-disturbance condition in the long term. The project will therefore not

remove habitat permanently from the landscape, but will remove it in the short and long term, certainly within lifetimes of both lynx and their primary prey.

Lease stipulations will mitigate impacts due to creation of roads and pads within the area, winter access, and vegetative changes (FEIS, page 129) (USFS, 2012a).

If the proposed action is implemented, 30 acres of suitable habitat could be directly lost through creation of roads and drill pads within the LAU (0.1%).

Disturbance to denning or foraging is possible if lynx are present in the area (USFWS, 2008). However, the exploration area is at lower elevation than denning has occurred in Colorado, there is abundant lynx habitat outside of the affected area, and lease stipulations follow management guidelines.

Traffic is not anticipated to be a substantial impact. Roads used for this project will be low-speed routes and public use would be prohibited. Roads will also be decommissioned after they are no longer needed, as noted in the lease stipulations. Winter access is not anticipated to be substantially increased over current levels as the area receives little recreational over-the-snow use and maintenance activities would be minimal.

Wolverine

Given that all potential habitat associated with the proposed action is currently unoccupied there will be no effect on the species.

Cumulative Effect

Past and current activities have resulted in a change of 125 acres of lynx habitat to unsuitable for lynx within the LAU within the last ten years (0.8% of lynx habitat within the LAU). There has been no timber harvest in this LAU within the last ten years, and any prior activity is incorporated into baseline habitat values for the LAU. The determination of effects (including cumulative) on lynx is that the proposed action *may affect, but is not likely to adversely affect the Canada lynx*.

3.7.2.2 No Action

There would be no additional impacts on wolverine, lynx or lynx habitat because exploration activities would not occur.

3.8 Forest Service Sensitive Species

3.8.1 Affected Environment

The Forest Service Manual (FSM) directs the Regional Forester to identify sensitive species for each National Forest where species viability may be a concern. National Forests are then required to monitor sensitive species populations and prevent declines that could require listing under the Endangered Species Act (FSM 2280.32 (4)). The direction requires the Forest Service to manage the habitat of the species listed in the Regional Forester's Sensitive Species List to prevent further declines in populations, which could lead to Federal listing.

Forest Service Region 2 Sensitive Species likely to be present or have habitat within the exploration area include:

- American Marten;
- Northern Goshawk;
- Pygmy Shrew;
- Boreal Owl;

- Olive-sided Flycatcher;
- Northern Leopard Frog; and
- Flammulated Owl;
- Purple Martin.
- Hoary Bat;

Habitat requirements are discussed in detail in the FEIS, beginning on page 133 (USFS, 2012a).

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Direct and Indirect Effects

The proposed action will involve ground disturbing activities, cutting trees and shrubs, and traffic which can cause a loss in suitable nesting habitat for birds, foraging habitat for all species, or direct mortality from vehicles (FEIS, beginning on page 133) (USFS, 2012a).

American Marten

There will likely be a complete loss of habitat suitability for American marten denning habitat from roads and pad construction in spruce-fir habitats (1.5 acres, **Table 6**). As only a small portion of the habitat would be affected, direct and indirect effects are anticipated to be insignificant.

Northern Goshawk

No active Goshawk nests are known to occur in the vicinity of the project. Lease stipulations (**Appendix A**) provide protection to known goshawk nest sites, should one be located. This design feature would help reduce the potential for loss of young during nesting as a result of nest abandonment due to disturbance. Implementation of the project is expected to result in the loss of 25.4 acres (**Table 6**) of mature aspen habitats in various stages of decline, which are currently suitable for goshawk foraging and nesting. An additional loss of 1.5 acre of spruce-fir habitat is also anticipated.

Pygmy Shrew

Suitable habitat (1.5 acres of spruce-fir, see **Table 6**) for the pygmy shrew would be converted to road and drill pads in the short term. This habitat should regenerate after project completion and reforestation. Shrews could be killed or injured during construction and from traffic. Because of the species' high reproductive rates and small portion of the habitat affected, direct and indirect effects are anticipated to be low and insignificant.

Boreal Owl and Olive-Sided Flycatchers

Boreal owl and olive-sided flycatchers are associated with spruce-fir habitats, similar to American marten. As a result, approximately 1.5 acres of suitable habitat may be lost as a result of road and drill pad construction, which will not be replaced until replanted conifers mature. The habitat lost represents a few individual territories. These species may use the newly created openings of the pads and roads for foraging. Creation of these openings would benefit this species. Occupied nesting habitat may also be impacted, which could cause a loss of young. Lease stipulations (**Appendix A**), including pre-disturbance survey and avoidance, provide protection for boreal owl nest sites.

Flammulated Owl

Project activities, including removal of suitable flammulated owl habitat may result in loss of nests and young. Lease stipulations (**Appendix A**), including pre-disturbance survey and avoidance, provide protection for raptor nest sites. Implementation of the proposed action would result in the loss of 25.4 acres of mature aspen, which is suitable nesting and foraging habitat (**Table 6**). Regeneration discussion and assumptions are the same as for goshawk noted above. Avoidance of known sites, if possible, would reduce risks to this species.

Hoary Bat

While the project does not include any removal of cottonwood trees, the primary roosting sites of the hoary bat, there is a possibility that bats may be roosting in aspen or spruce trees which may be removed as a result of the surface disturbance associated with drill pad and associated road construction. Therefore, there is a possibility of disturbance during roosting and loss of individuals or roosting habitat as a result of exploration activities. Loss of such roosting habitat would impact individuals in the long term, until such habitat grew back. The potential for loss or degradation of foraging habitat along streams and at ponds in the area is negligible.

Northern Leopard Frog

The lack of wetlands will prevent impacts from siltation and fuel spills on the northern leopard frog. By stipulation (**Appendix A**), surface use or disturbances will avoid riparian, wetland or floodplain areas unless there is no practical alternative. Culverts will be used for seven stream crossings. Adults may be killed by construction of roads and drill pads and traffic if they get on the road or drill pad location. There is also a possibility that movement of tadpoles or adult frogs may be curtailed by placement of culverts at stream crossings.

Purple Martin

Purple martin use aspen habitats, similar to flammulated owls. Project activities, including removal of suitable habitat, are likely to occur during the nesting period, and may result in loss of nests and young. Implementation of the proposed action would result in the loss of 25.4 acres of suitable nesting and foraging habitat (mature aspen) (**Table 6**). Regeneration discussion and assumptions are the same as for goshawk noted above. Avoidance of known sites, if possible, would reduce risks to this species.

Cumulative Effects

For all Forest Service Region 2 Sensitive Species present or with habitat in the exploration area, the determination of effects is that the exploration project *may adversely affect individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend towards federal listing* from the reasonably foreseeable actions.

3.8.2.2 No Action Alternative

Under the no action alternative, there would be no impacts from disturbance and therefore no impacts on USFS R2 Sensitive Species.

3.9 Management Indicator Species

3.9.1 Affected Environment

The Forest Service is required (36 CFR 219.19(a)(6)) to produce a unique list of species to represent forest communities or ecosystems as management indicator species. The 2005 Forest Plan Amendment modified this list. Management indicator species that occur or have habitat in the analysis area include:

- American marten (discussed as a Sensitive Species above);
- Northern goshawk (discussed as a Sensitive Species above);
- Elk;
- Merriam's Wild Turkey; and
- Red-Naped Sapsucker.

As there are only intermittent streams in the analysis area there are no management indicator fish with suitable habitat present and therefore will not be discussed.

Elk

The elk herds in the exploration area are migratory, using higher elevation forests and meadows during the summer. The exploration area lies in elk summer range, but not within a mapped calving area or winter range. The proposed activities lie within the Colorado Parks and Wildlife's Game Management Unit (GMU) 53, which is part of elk Data Analysis Unit (DAU) E-52. The elk population estimate for this DAU, based on 2008 post-hunting surveys, was 3,890 elk (CPW, 2010), within the objective population (USFS, 2012a).

Merriam's Wild Turkey

Turkeys are widespread and locally abundant across the Paonia district, especially in oak and other shrub habitats. Populations of turkey are directly controlled by hunting seasons determined by the Colorado Parks and Wildlife. Other population pressures include predation from other species such as coyotes. Habitat alteration can have both harmful and beneficial impacts to turkeys, and treatments which provide a mosaic of habitat features, allowing for all life stages.

Red-Naped Sapsucker

In Colorado, red-naped sapsuckers forage in aspen, willows and cottonwoods close to their nest sites, which are almost exclusively in mature aspen stands. Typical nest stands, dominated by large aspen, have a variety of diseases that create the heart rot needed for suitable cavity excavation (Kingery, 1998). Nest stands have trees infected with shelf or heartwood fungus (for drilling nest cavities) and nearby willow stands (for drilling sap wells).

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Direct and Indirect Effects

Elk

None of the proposed activities are within mapped elk production areas. However, elk may calve at any location on and off the Forest. Therefore, if activities occur during calving season, elk may be displaced by exploration activities.

Access roads used would be closed to the public after construction is complete, and no increase in motorized use of the area after construction, other than minimal entries for monitoring, are anticipated. The exploration area contains no open motorized routes (USFS, 2010).

Because elk are very adaptable, and use a wide variety of habitats, the conversion of existing vegetation to a grass/forb, then young seral stages of disturbed habitats once roads and pads are reclaimed is unlikely to have any effect on elk populations. Forage availability in this area is likely to increase once reclamation occurs.

Vulnerability to hunters could increase in the new road prisms and pads for several years, but abundant cover is currently found throughout the analysis area and is likely to be immediately available to elk during hunting seasons.

Merriam's Wild Turkey

Individual nests could be directly lost or abandoned as a result of project activities, but turkeys may re-attempt nesting elsewhere if project actions are detrimental. Direct mortality is possible if turkeys are nesting during construction activities. Long-term effects in cover type and abundance are unlikely to cause substantial impacts on turkeys, as they utilize a wide variety of habitats in this area. Long-term changes in human use of the area are unlikely to result from this project, as described for elk above.

The project would affect 30 acres of potential summer turkey habitat.

Red-Naped Sapsucker

Exploration activities during the nest building through fledgling period of May 20 through August 25 may result in abandonment of nests or alteration of territorial boundaries in the analysis area. Individual nests with eggs or young could be lost during from nest abandonment due to disturbance, or through direct mortality.

Habitat changes in this area would be limited to alteration of 25.4 acres of mature aspen stands, suitable for nesting and foraging.

Cumulative Effects

According to breeding bird surveys, populations appear to be stable or increasing in the U.S., with areas of local declines. From the period 1966 to 2006, the three sapsucker species (combined in the analysis) have exhibited a positive trend of +3.4%. Within Colorado, populations have exhibited similar but higher upward trends (Sauer, Hines, & Fallon, 2008).

Ongoing or reasonably foreseeable future activities within this area, when combined with the proposed action, *are not likely to contribute to long-term cumulative impacts on American marten, northern goshawk, elk, Merriam's wild turkey, or red-naped sapsucker.*

3.9.2.2 No Action Alternative

Under the no action alternative, there would be no impacts from disturbance and therefore no impacts on management indicator species.

3.10 Migratory Birds

3.10.1 Affected Environment

Migratory and other birds of conservation concern do occur in the exploration area. A list is available in the FEIS, on page 153 (USFS, 2012a).

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Direct and Indirect Effects

Exploration may impact species protected under the Migratory Bird Treaty Act. Stipulations requiring breeding bird surveys and including timing restrictions where needed for specific species, may mitigate impacts on migratory birds. However, some bird habitat will be altered in the short term and may result in a type conversion of 30 acres. This is likely to impact individual migratory birds, especially passerines and other birds which utilize aspen, spruce-fir, and shrubs for nesting. These impacts are not anticipated to result in declines in populations of any species protected by the Migratory Bird Treaty Act. Disturbed areas may provide foraging opportunities for some species, and eventual revegetation of project sites, to whichever habitat type grows back, will result in suitable nesting and foraging habitat for some species.

The proposed exploration will occur in the late spring, summer, and early fall months and avoid riparian habitats. Operations will be located to not interfere with raptor nesting sites.

Cumulative Effects

While natural processes and management activities will continue to impact migratory birds wherever removal or habitat conversions occur, cumulative impacts from the proposed action would be minor.

3.10.2.2 No Action Alternative

Under the no action alternative, there would be no impacts from disturbance and therefore no impacts on migratory birds.

3.11 Wetlands and Riparian Areas, and Aquatic Habitats

3.11.1 Affected Environment

Riparian areas, wetlands, and ponds occur in and near the project area. Lease stipulations and Best Management Practices (BMPs) prevent pads and roads in wetlands except for crossing of drainages for access, when other access is not feasible.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

Direct and Indirect Effects

Lease stipulations prohibit surface disturbance in riparian, wetland or floodplain areas, or within the buffer zone surrounding these areas, unless no practical alternatives exist.

The GMUG Forest Plan and the Forest Service Watershed Conservation Practices Handbook require limiting ground-disturbing activities on unstable slopes and highly erosive areas, as well as avoidance of wetlands or other riparian habitats. Due to the watershed related lease stipulations and the adherence to Forest Service policy these areas will be minimized or avoided.

Wetlands have been avoided by road and drill pad locations. There will be no direct impacts from disturbance on wetlands. Very minor impacts on riparian vegetation may occur where new temporary roads will cross streams. Also, an indirect impact may occur if minimal amounts of sediment may enter streams and cause sediment input to wetlands and riparian areas and aquatic habitat near a stream crossing. These effects would be so minimal as to be unnoticeable.

Cumulative Effects

Grazing can result in loss of riparian vegetation. As the direct and indirect effects on riparian vegetation are anticipated to be unnoticeable, the cumulative effects will be minor.

3.11.2.2 No Action

The no action alternative would not cause disturbances that would affect riparian areas or wetlands.

3.12 Water Quality

3.12.1 Affected Environment

The East Fork of Minnesota Creek, just west of the lease modification areas, and Deep Creek, just northeast of the exploration area, drain to the North Fork of the Gunnison River. The North Fork of the Gunnison River joins the Gunnison River downstream of Hotchkiss. There are two US Geological Survey monitoring locations along this reach: North Fork of the Gunnison River near Somerset, Colorado (Station No. 09132500) and North Fork of the Gunnison River below Leroux Creek, near Hotchkiss, Colorado (Station No. 09135950). Stream flow has been monitored at the station near Somerset since October 1933. The drainage area at the Somerset area is 526 square miles (FEIS, page 105) (USFS, 2012a).

3.12.1.1 Surface Water

Figure 2 shows the streams in the exploration area, along with the temporary road locations and drilling sites. The Miller Creek subwatershed is the main watershed and includes Lick Creek, South Prong Creek, and Horse Creek. A small portion drains to the northeast into Deep Creek. Both drainages eventually empty into the North Fork of the Gunnison River.

Lick Creek is an intermittent drainage with zero flow conditions typically occurring August through March. South Prong Creek and Horse Creek, as reported by MCC data, are ephemeral and flow only in response to spring runoff conditions and storm events.

3.12.1.2 Groundwater Resources

Shallow groundwater resources are limited due to geomorphic controls imparted from the relatively steep gradients and stream profiles of drainages in the area, resulting in relatively thin alluvial/colluvial deposits confined to the bottoms of drainages. Groundwater that surfaces as springs and seeps in the tracts is associated with these shallow alluvial/colluvial deposits and does not appear to be hydrologically connected with deeper bedrock aquifers.

Groundwater may also be present to a limited extent within coal seams. Bedrock and associated coals dip to the northeast with the uppermost strata outcropping along the North Fork valley. The occurrence of groundwater springs in the North Fork outcrops of the Mesa Verde formation are rare.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

Direct and Indirect Effects

Surface Water

Surface disturbance of approximately 30 acres would occur from roads and drill pads. Stipulations, erosion control, and use of BMPs proposed in the coal exploration plan will minimize the potential for erosion and subsequent sedimentation into streams. However, even with implementation of these management practices, some soil loss may occur and some surface water may temporarily exhibit increased sediment loads.

Seven riparian crossings are anticipated to access drilling sites. Culverts will be used for stream crossings to minimize impacts from sediment. Riparian crossings are in compliance with the lease stipulation because no practical alternatives exist.

Roads and drill pads will be reclaimed following Forest Plan standards and guidelines. With respect to previous surface disturbances on nearby leases, revegetation has been observed to be generally successful between two and five years after reclamation work is completed.

Through leasing stipulations, disturbances on soil types with high erosion or mass movement hazard are prohibited, so the project is less likely to result in increased erosion or trigger landslides. The GMUG Forest Plan (USFS, 1991), and the Forest Service Watershed Conservation Practices Handbook calls for limiting ground-disturbing activities on unstable slopes and highly erosive areas. Due to the watershed related lease stipulations proposed for exploration areas, and the adherence to Forest Service policy, these areas will be avoided.

Ground Water

The proposed exploration drilling is not expected to encounter any water bearing fault zones or significant groundwater inflows. Drilling locations are required to be completed in a manner that would protect groundwater resources from contamination. No impacts on groundwater are expected from exploration activities.

Cumulative Effects

Current mining activity at the West Elk Mine has had no discernible localized effects to stream morphology, erosion rate, or suspended sediment load. High flows in intermittent and ephemeral

surface water resources in smaller tributary drainages are limited to spring runoff and very large thunderstorm events; therefore, subsidence-induced impacts in these drainages would be minimal.

Due to the overriding influence of continued drought in the North Fork basin and the fact that creek flow is unlikely to be affected by subsidence or mine operations; it is unlikely that water resource allocations for the greater watershed will be impacted.

Accidental fuel or solvent spills from post-lease activities or through activities on private lands could impact shallow groundwater locally and surface water. An SPCC plan has been prepared to avoid impacts and respond to any spills that occur.

The potential for cumulative groundwater impacts in the study area is expected to be minimal. In adjacent lands private domestic wells could be drilled and septic systems could be installed. Adjacent private lands could be mined and water resource impacts on those lands would be similar to that described above. Appropriate state and county regulations would have to be followed, minimizing impacts to groundwater quantity and quality.

3.12.2.2 No Action

Under the no action alternative, there would be no disturbance and therefore no impacts on surface or groundwater quality.

3.13 Social and Economic Conditions

3.13.1 Affected Environment

Delta County is the county of residence for most of the mining personnel and supports most of the indirect employment that provides supplies and services to mine workers and their families. The indirect businesses that provide support services to the West Elk Mine operations include shipping companies, railroad and rail services, power generating companies, delivery services, and general supply companies and services. Delta County receives the indirect financial benefit and tax revenue from the indirect businesses that support the mine, and the tax base from the workers, and their families, that reside in the County. Gunnison County is included in the area of influence because the proposed exploration is located in Gunnison County, and the county receives royalty and tax revenues from the mine

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

Direct and Indirect Effects

Exploration would provide temporary employment for exploration drillers, resource evaluators, and reclamation personnel. Exploration would provide more certainty as to the presence of minable coal.

Cumulative Effects

It is estimated that mining the coal reserves in the exploration area would increase the West Elk mine life by approximately three years, Confirmation of that estimate is desirable to bring forth the most efficient mine plan.

3.13.2.2 No Action

Under no action, MCC would not be able to evaluate the coal resource on their leases and would gain no confirmation of current estimates.

3.14 Access and Transportation

3.14.1 Affected Environment

Primary access routes that will be affected are the Sylvester Gulch Road and NFSR 711. The Forest Service manages NFSR 711 as a low standard road, suitable for high clearance vehicles. MCC completed upgrades (spot graveling, blading, curve widening, and turnout construction). Traffic use on NFSR 711 is low. A small amount of traffic uses the road for recreational purposes, including ATVs, dirt bikes and occasional mountain bikes. Grazing permittees also use the road for access to range allotments, and hunters use the road to access hunting areas. Snowmobiles use the NFSR 711 as a travel route.

3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

Direct and Indirect Effects

Minimal additional traffic will occur on NFSR 711 and the Sylvester Gulch Road during exploration activities as drill rigs, support vehicles, and crews enter and leave the area for the one to two years of activities. Approximately 5.9 miles of temporary road would be constructed if all exploration holes are drilled. Temporary roads constructed will not affect the overall public transportation system as access on them will be restricted (not open to the public) during exploration activities and they will be closed and reclaimed following use. Use of public roads by heavy equipment, drilling traffic, and mine operations may impact road condition, however because of the mine's road use permit and required maintenance the mine usually leaves the road in better condition than required.

No additional demand for transportation of employees to MCC's mine surface operations facilities, or coal handling and transport facilities would be required. Mining operations and processing would be extended throughout the period required to mine available coal.

Cumulative Effects

Cumulative effects of road use for other projects or recreation will be similar to the stated direct and indirect effects.

3.14.2.2 No Action

Under the no action alternative, there would be no additional temporary roads constructed or use of existing roads for drilling; therefore, there would be no impacts on access and transportation.

3.15 Range Management

3.15.1 Affected Environment

The project is located in the Dry Fork cattle allotment. Five permittees are authorized to use the area.

3.15.2 Environmental Consequences

3.15.2.1 Proposed Action

Direct and Indirect Effects

Direct and indirect effects of the proposed action include minimal vegetation disturbance that would ultimately be reclaimed and restore range resources. About 30 acres of total disturbance could occur through construction of temporary roads and drill pads. Road and drill pads are expected to be on the landscape for two years. During use and interim reclamation, there would be temporary loss of forage for livestock and wildlife. However, once reclamation reestablishes vegetation on disturbed areas, because of the increase in grass and forb species range conditions would improve.

Exploration activities may increase traffic and seasonal use in the area. As reclamation activities take place, cattle grazing in these areas can slow the efforts in a given year, but does not lead to lack of reclamation success.

Cumulative Effects

Increased traffic and seasonal use will add to the already growing problem with cattle migration off of scheduled allotments. Vegetation treatments for wildlife purposes will also enhance range conditions. Cumulative effects from the proposed action are expected to be minor and short-term.

3.15.2.2 No Action

Under the no action alternative, there would be no disturbance and therefore no impacts on range resources.

3.16 Visual Resources

3.16.1 Affected Environment

The exploration area is in Gunnison County, generally east of the town of Paonia and southeast of Somerset. Residents and tourists visit the area for scenic and recreation values.

The Scenery Management System, described in FS Agriculture Handbook 701, outlines the process for inventorying and analyzing aesthetic values on National Forest lands (USFS, 1995). Scenic resources are defined as attributes, characteristics, and features of landscapes that provide varying responses from and varying degrees of benefits to humans.

Scenic integrity is the state of naturalness or, conversely, the state of disturbance created by human activities or alteration (USFS, 1995). Integrity is stated in degrees of deviation from the existing landscape character. The exploration area has Scenic Integrity Objectives of “moderate” and “moderate/high”. High scenic integrity appears unaltered. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident. Moderate appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.

The exploration area is not directly visible from a public highway or NFSRs which are secondary travelways and low use areas.

3.16.2 Environmental Consequences

3.16.2.1 Proposed Action

Direct and Indirect Effects

Surface disturbance may be visible, including temporary roads and drilling pads because of associated vegetation removal on approximately 30 acres. These features, however, should not be visible from public travelways due to the distance from existing publicly accessible travelways, and topographic and vegetative screening. Use of the lease stipulation for visual resources will further reduce visual impacts.

Cumulative Effects

Reasonably foreseeable activities could result in cumulative impacts on visual resources when combined with other vegetation and ground disturbing projects affecting form, line, color, texture, and pattern of the surrounding area. The heights, type, and color of potential development, together with their placement with respect to local topography, short duration of features on the surface and application of stipulation are factors that would contribute to minimizing the extent of visual intrusion on the landscape.

3.16.2.2 No Action

Under the No Action Alternative, there would be no disturbance and therefore no impacts on visual quality.

4.0 INTERDISCIPLINARY REVIEW

The following federal agency personnel have contributed to and provided interdisciplinary review of this environmental assessment.

Name	Title	Agency	Area of Responsibility
Chad Meister	Resource Specialist	BLM	Air Quality
Ryan Taylor	Paonia District Geologist	USFS	Geology/Document review
Nicole Mortenson	Engineering and Minerals NEPA Specialist	USFS	Over all document review
Levi Broyles	Paonia District Ranger	USFS	Review for concurrence
Desty Dyer	Mining Engineer	BLM	Mining/Document review
Christina Reed	BLM Colorado State Office Planning and Environmental Coordinator	BLM	NEPA review
Teresa Pfifer	Lands & Minerals Supervisor	BLM	Document review
Bruce Krickbaum	Uncompahgre Field Office Planning & Environmental Coordinator	BLM	Document review
Gina Jones	Southwest District Planning & Environmental Coordinator	BLM	Document review

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Appendix A
Lease Stipulations

Stipulation for Federal Coal Lease COC-1362, Lease Modification Tract #3

**NOTICE FOR LANDS OF THE NATIONAL FOREST SYSTEM UNDER JURISDICTION OF
DEPARTMENT OF AGRICULTURE**

The permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of Interior in the permit. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of the Interior, (2) uses of all existing improvements, such as forest development roads, within and outside the area permitted by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit/operation plan approved by the Secretary of the Interior. All matters related to this stipulation are to be addressed to:

District Ranger, Paonia Ranger District, Grand Mesa-Uncompahgre-Gunnison NF
PO Box 1030, Paonia, CO 81428; (970) 527-4131

who is the authorized representative of the Secretary of Agriculture.

NOTICE

CULTURAL AND PALEONTOLOGICAL RESOURCES The FS is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the FS, shall:

- Contact the FS to determine if a site specific cultural resource inventory is required. If a survey is required then:
- Engage the services of a cultural resource specialist acceptable to the FS to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the FS for review and approval at the time a surface disturbing plan of operation is submitted.
- Implement mitigation measures required by the FS and BLM to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing, salvage, and recordation or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.
- The lessee or operator shall immediately bring to the attention of the FS and BLM any cultural or paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this license, and shall leave such discoveries intact until directed to proceed by FS and BLM.

The FS is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in

violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the FS that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resource specialist approved by the FS. An acceptable report must be provided to the FS identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

If there is reason to believe that Sensitive, Threatened or Endangered species of plants or animals, or migratory bird species of high Federal interest are present, or become present in the lease area, the Lessee/Operator shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist, and a report of findings prepared. A plan will be made that recommends protection for these species or action necessary to mitigate the disturbance. The cost of conducting such inventory, preparing reports and carrying out mitigation measures shall be borne by the Lessee/Operator.

1. To comply with the GMUG Forest Plan 2008 amendment, the following special constraints will apply if surface use on the lease is proposed in lynx habitat:
 - Winter access will be limited to designated routes.

Further, should surface disturbing operations be proposed on the lease in lynx habitat, the following special constraints will apply:

- Remote monitoring of the development sites and facilities will be required to reduce snow compaction.
 - A reclamation plan (e.g. road reclamation and vegetation rehabilitation) for sites and facilities that promotes the restoration of lynx habitat will be required.
 - Public motorized use on new roads constructed for project-specific purposes will be restricted.
 - Access roads will be designed to provide for effective closures and will be reclaimed or decommissioned at project completion if they are no longer needed for other management objectives.
 - New permanent roads will not be built on ridge tops or in saddles, if possible, or in areas identified as important for lynx habitat connectivity. New roads will be situated away from forested stringers, if possible.
2. With respect to Raptors:
 - Conduct surveys for nesting raptors on the lease prior to development of any surface facilities, and
 - No surface activities will be allowed within ½-mile radius of active nest sites between the dates of February 1 and August 15, unless authorized by the Forest Service on a site-specific basis.
 - No surface activities will be allowed within 1-mile radius of active bald eagle or peregrine falcon nest sites * between the dates of February 1 and August 15, unless authorized by the Forest Service on a site-specific basis. (* No bald eagle or peregrine falcon nest site habitat

has been identified within the lease modifications as indicated in the Biological Evaluation prepared for this analysis.)

3. In order to protect big game wintering areas, elk calving areas, and other key wildlife habitat and/or activities, specific surface use may be curtailed during specific times of year. Specific time restrictions for specific species will be evaluated by the Forest Service at the individual project stage, and any additional site specific conditions of use developed at that time.
4. In the future, if water to be used for mine related activities is taken from a source that is not considered to be non-tributary waters by the U.S. Fish and Wildlife Service, or which exceeds a depletion amount previously consulted upon, the permitting agency must enter into consultation with the U.S. Fish and Wildlife Service to determine appropriate conservation measures to offset effects to listed fish and critical habitat in the upper Colorado River Basin.
5. If surface disturbance is proposed on the lease, the lessee/operators will be required to conduct breeding bird surveys prior to surface disturbance as prescribed by the Forest Service.
6. No surface occupancy would be allowed in areas of high geologic hazard or high erosion potential, or on slopes which exceed 60%.
7. Special interdisciplinary team analysis and mitigation plans detailing construction and mitigation techniques would be required on areas where slopes range from 40-60 percent. The interdisciplinary team could include engineers, soil scientist, hydrologist, landscape architect, reclamation specialist and mining engineer.
8. The operator/lessee would be required to perform adequate baseline studies to quantify existing surface and subsurface resources. Existing data can be used for baseline analyses provided that the data is adequate to locate, quantify, and demonstrate interrelationships between geology, topography, hydrogeology, and hydrology. Baseline studies are critical to the success of future observation and assessment of mining related effects on resources.
9. The operator/lessee would be required to establish or amend a monitoring program to be used as a continuing record of change over time of area resources in order to assess mining induced impacts. The monitoring program shall provide the procedures and methodologies to adequately assess interrelationships between geology, topography, hydrogeology, and hydrology identified in the baseline assessment to mining activities on the lease area. The monitoring program shall incorporate baseline data so as to provide a continuing record over time.
10. Surface use or disturbances (except for surface subsidence and resource monitoring purposes defined in the approved mining permit) will avoid riparian, wetland or floodplain areas, and a buffer zone surrounding these areas (the definition of riparian areas and appropriate buffer zone will be consistent with that defined in the Forest Service Manual and Water Conservation Practices Handbook. Wetland definition will follow Army Corps of Engineers guidelines) unless no practical alternatives exist.
11. If subsidence adversely affects surface resources in any way (including, but not limited to a documented water loss), the Lessee, at their expense will be responsible to: restore stream channels, stock ponds, protect stream flow with earthwork or temporary culverts, restore affected roads, or provide other measures to repair damage or replace any surface water and/or developed ground water source, stock pond, water conveyance facilities, with water from an

alternate source in sufficient quantity and quality to maintain existing riparian habitat, livestock and wildlife use, or other land uses as authorized by 36 CFR 251.

12. The Lessee/Operator shall be responsible for monitoring, repairing and/or mitigating subsidence effects on existing facilities under Special Use Permit with the Forest Service. Monitoring, repair and/or mitigation, if needed, would be performed at the Lessee's expense. These requirements will be coordinated with the District Ranger and the Special Use Permittee.
13. Regarding the Colorado Roadless Rule, on the following lands within the Sunset CRA, surface operations incident to underground coal mining are subject to regulations in 36 CFR 294, subpart D:
 - All roads that may be constructed must be temporary.
 - All temporary road construction must be consistent with applicable land management plan direction
 - Road construction may only occur if motorized access has been deemed infeasible by the responsible official; unless a temporary road is needed to protect public health and safety in cases of an imminent threat of flood, fire or other catastrophic event that, without intervention, would cause the loss of life or property
 - Temporary road construction must be completed in a manner that reduces effects on surface resources, and prevents unnecessary or unreasonable surface disturbance
 - All temporary roads must be decommissioned and affected landscapes restored when it is determined that the road is no longer needed for the established purpose
 - All temporary roads must prohibit public motorized vehicles (including off-highway vehicles) except:
 - Where specifically used for the purpose for which the road was established; or
 - Motor vehicle use that is specifically authorized under a Federal law or regulation.

For any linear construction zone (LCZ) over 50 inches wide used to install pipelines, the Regional Forester must determine that they are needed, and the responsible official must determine that motorized access without a linear construction zone is not feasible.

- Construction and use of linear construction zones must be consistent with the GMUG Forest Land and Resource Management Plan, and may be no wider than their respective intended uses.
- Installation of linear construction zones will be done in a manner that minimizes ground disturbance.
- Reclamation of a linear construction zone will not diminish, over the long-term, roadless area characteristics. All authorizations approving the installation of linear facilities through the use of a linear construction zone shall include a responsible official approved reclamation plan for reclaiming the affected landscape while conserving roadless area characteristics over the long-term. Upon completion of the installation of a linear facility via the use of a linear construction zone, all areas of surface disturbance shall be reclaimed as prescribed in the authorization and the approved reclamation plan and may not be waived.

14. Within the lease modification areas, the lessee will work with the District Ranger and his/her representative to see that all mine operations are situated on the ground in such a manner that reasonably minimizes impacts to the scenic integrity of that landscape as prescribed in the Forest Plan.
15. If flaring or other combustion is prescribed as part of any future mitigation measure, lessee will be required to submit a fire prevention and protection plan subject to responsible Forest Service official for approval.

Stipulation for Federal Coal Lease COC-67232, Lease Modification Tract #1**NOTICE FOR LANDS OF THE NATIONAL FOREST SYSTEM UNDER JURISDICTION OF
DEPARTMENT OF AGRICULTURE**

The permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of Interior in the permit. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of the Interior, (2) uses of all existing improvements, such as forest development roads, within and outside the area permitted by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit/operation plan approved by the Secretary of the Interior. All matters related to this stipulation are to be addressed to:

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- Contact the FS to determine if a site specific cultural resource inventory is required. If a survey is required then:
- Engage the services of a cultural resource specialist acceptable to the FS to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the FS for review and approval at the time a surface disturbing plan of operation is submitted.
- Implement mitigation measures required by the FS and BLM to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing, salvage, and recordation or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.
- The lessee or operator shall immediately bring to the attention of the FS and BLM any cultural or paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this license, and shall leave such discoveries intact until directed to proceed by FS and BLM.

The FS is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in

violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the FS that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resource specialist approved by the FS. An acceptable report must be provided to the FS identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

If there is reason to believe that Sensitive, Threatened or Endangered species of plants or animals, or migratory bird species of high Federal interest are present, or become present in the lease area, the Lessee/Operator shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist, and a report of findings prepared. A plan will be made that recommends protection for these species or action necessary to mitigate the disturbance. The cost of conducting such inventory, preparing reports and carrying out mitigation measures shall be borne by the Lessee/Operator.

1. To comply with the GMUG Forest Plan 2008 amendment, the following special constraints will apply if surface use on the lease is proposed in lynx habitat:
 - Winter access will be limited to designated routes.

Further, should surface disturbing operations be proposed on the lease in lynx habitat, the following special constraints will apply:

- Remote monitoring of the development sites and facilities will be required to reduce snow compaction.
 - A reclamation plan (e.g. road reclamation and vegetation rehabilitation) for sites and facilities that promotes the restoration of lynx habitat will be required.
 - Public motorized use on new roads constructed for project-specific purposes will be restricted.
 - Access roads will be designed to provide for effective closures and will be reclaimed or decommissioned at project completion if they are no longer needed for other management objectives.
 - New permanent roads will not be built on ridge tops or in saddles, if possible, or in areas identified as important for lynx habitat connectivity. New roads will be situated away from forested stringers, if possible.
2. With respect to Raptors:
 - Conduct surveys for nesting raptors on the lease prior to development of any surface facilities, and
 - No surface activities will be allowed within ½-mile radius of active nest sites between the dates of February 1 and August 15, unless authorized by the Forest Service on a site-specific basis.
 - No surface activities will be allowed within 1-mile radius of active bald eagle or peregrine falcon nest sites * between the dates of February 1 and August 15, unless authorized by the Forest Service on a site-specific basis. (* No bald eagle or peregrine falcon nest site habitat

has been identified within the lease modifications as indicated in the Biological Evaluation prepared for this analysis.)

3. In order to protect big game wintering areas, elk calving areas, and other key wildlife habitat and/or activities, specific surface use may be curtailed during specific times of year. Specific time restrictions for specific species will be evaluated by the Forest Service at the individual project stage, and any additional site specific conditions of use developed at that time.
4. In the future, if water to be used for mine related activities is taken from a source that is not considered to be non-tributary waters by the U.S. Fish and Wildlife Service, or which exceeds a depletion amount previously consulted upon, the permitting agency must enter into consultation with the U.S. Fish and Wildlife Service to determine appropriate conservation measures to offset effects to listed fish and critical habitat in the upper Colorado River Basin.
5. If surface disturbance is proposed on the lease, the lessee/operators will be required to conduct breeding bird surveys prior to surface disturbance as prescribed by the Forest Service.
6. No surface occupancy would be allowed in areas of high geologic hazard or high erosion potential.
7. Special interdisciplinary team analysis and mitigation plans detailing construction and mitigation techniques would be required on areas where slopes range from 40-60 percent. The interdisciplinary team could include engineers, soil scientist, hydrologist, landscape architect, reclamation specialist and mining engineer.
8. The operator/lessee would be required to perform adequate baseline studies to quantify existing surface and subsurface resources. Existing data can be used for baseline analyses provided that the data is adequate to locate, quantify, and demonstrate interrelationships between geology, topography, hydrogeology, and hydrology. Baseline studies are critical to the success of future observation and assessment of mining related effects on resources.
9. The operator/lessee would be required to establish or amend a monitoring program to be used as a continuing record of change over time of area resources in order to assess mining induced impacts. The monitoring program shall provide the procedures and methodologies to adequately assess interrelationships between geology, topography, hydrogeology, and hydrology identified in the baseline assessment to mining activities on the lease area. The monitoring program shall incorporate baseline data so as to provide a continuing record over time.
10. Surface use or disturbances (except for surface subsidence and resource monitoring purposes defined in the approved mining permit) will avoid riparian, wetland or floodplain areas, and a buffer zone surrounding these areas (the definition of riparian areas and appropriate buffer zone will be consistent with that defined in the Forest Service Manual and Water Conservation Practices Handbook. Wetland definition will follow Army Corps of Engineers guidelines) unless no practical alternatives exist.
11. If subsidence adversely affects surface resources in any way (including, but not limited to a documented water loss), the Lessee, at their expense will be responsible to: restore stream channels, stock ponds, protect stream flow with earthwork or temporary culverts, restore affected roads, or provide other measures to repair damage or replace any surface water and/or developed ground water source, stock pond, water conveyance facilities, with water from an

alternate source in sufficient quantity and quality to maintain existing riparian habitat, livestock and wildlife use, or other land uses as authorized by 36 CFR 251.

12. The Lessee/Operator shall be responsible for monitoring, repairing and/or mitigating subsidence effects on existing facilities under Special Use Permit with the Forest Service. Monitoring, repair and/or mitigation, if needed, would be performed at the Lessee's expense. These requirements will be coordinated with the District Ranger and the Special Use Permittee.
13. Regarding the Colorado Roadless Rule, on the following lands within the Sunset CRA, surface operations incident to underground coal mining are subject to regulations in 36 CFR 294, subpart D:
 - All roads that may be constructed must be temporary.
 - All temporary road construction must be consistent with applicable land management plan direction
 - Road construction may only occur if motorized access has been deemed infeasible by the responsible official; unless a temporary road is needed to protect public health and safety in cases of an imminent threat of flood, fire or other catastrophic event that, without intervention, would cause the loss of life or property
 - Temporary road construction must be completed in a manner that reduces effects on surface resources, and prevents unnecessary or unreasonable surface disturbance
 - All temporary roads must be decommissioned and affected landscapes restored when it is determined that the road is no longer needed for the established purpose
 - All temporary roads must prohibit public motorized vehicles (including off-highway vehicles) except:
 - Where specifically used for the purpose for which the road was established; or
 - Motor vehicle use that is specifically authorized under a Federal law or regulation.

For any linear construction zone (LCZ) over 50 inches wide used to install pipelines, the Regional Forester must determine that they are needed, and the responsible official must determine that motorized access without a linear construction zone is not feasible.

- Construction and use of linear construction zones must be consistent with the GMUG Forest Land and Resource Management Plan, and may be no wider than their respective intended uses.
- Installation of linear construction zones will be done in a manner that minimizes ground disturbance.
- Reclamation of a linear construction zone will not diminish, over the long-term, roadless area characteristics. All authorizations approving the installation of linear facilities through the use of a linear construction zone shall include a responsible official approved reclamation plan for reclaiming the affected landscape while conserving roadless area characteristics over the long-term. Upon completion of the installation of a linear facility via the use of a linear construction zone, all areas of surface disturbance shall be reclaimed as prescribed in the authorization and the approved reclamation plan and may not be waived.

14. Within the lease modification areas, the lessee will work with the District Ranger and his/her representative to see that all mine operations are situated on the ground in such a manner that reasonably minimizes impacts to the scenic integrity of that landscape as prescribed in the Forest Plan.
15. If flaring or other combustion is prescribed as part of any future mitigation measure, lessee will be required to submit a fire prevention and protection plan subject to responsible Forest Service official for approval.