



# United States Department of the Interior



## BUREAU OF LAND MANAGEMENT

Grand Junction Field Office  
2815 H Road  
Grand Junction, Colorado 81506

IN REPLY REFER TO:

8550  
(CO130)

JUL 13 2004

Dear Reviewer:

Environmental Assessment CO-130-2004-083-EA, analyzing the proposed oil and gas leasing of the South Shale Ridge area west of De Beque, Colorado is available for your review. Comments will be accepted through August 12, 2004. Comments, questions or requests for paper copies may be addressed to David Lehmann, at 970-244-3021 or emailed to [David\\_Lehmann@co.blm.gov](mailto:David_Lehmann@co.blm.gov).

Sincerely,

Catherine Robertson  
Field Manager

**U.S. Department of the Interior  
Bureau of Land Management  
Grand Junction Field Office  
2815 H Road  
Grand Junction, CO 81506**

## **ENVIRONMENTAL ASSESSMENT**

NUMBER: CO-130-2004-083-EA

PROJECT NAME: South Shale Ridge Oil and Gas Leasing Proposal

LEGAL DESCRIPTION: See Attached Maps

APPLICANT: BLM is responding to oil and gas lease nominations from the public.

ISSUES AND CONCERNS: The South Shale Ridge area was inventoried by BLM and found to have wilderness characteristics in September of 1999. These wilderness characteristics were not analyzed in the Grand Junction Resource Management Plan (RMP) and Environmental Impact Statement (EIS) of 1987 and may be impacted by additional oil and gas leasing. Other resource impacts were analyzed in the RMP and EIS.

### DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

#### Background/Introduction:

The area boundary encompasses approximately 27,500 acres. Of that acreage, approximately 11,000 acres are currently leased for oil and gas development. There are 30 existing leases that lie all or partly within the area (Map2). One well has been drilled on an existing lease since the 1999 wilderness character inventory. Based on historical production figures from wells located within an 8 township area including SSR, the average production from a well ranges from about 4,800 to 12,000 mcf/year.

#### 1. *Proposed Action:*

The proposed action is to make the South Shale Ridge area available for oil and gas leasing, with RMP stipulations. For purposes of impact analysis, it is projected that 21 wells and associated roads and pipelines would be drilled over the next 20 years. This exploration would result in an average of one well per section in the area within the boundary that is not excluded from drilling by No Surface Occupancy, Steep Slope stipulations or other RMP lease stipulations. Each well is projected to generate an average 7.0 acres of surface disturbance, including the well drilling pad, access road and pipelines. Well pad size would average approximately 3.2 acres. A deep well would typically have a larger working area during drilling of 200 by 325 feet including the reserve pit, with additional area disturbed to accommodate cuts and fills, excess material storage and rough terrain. Shallow wells could have smaller pads.

Roads and pipelines are expected to disturb an average 3.8 acres per well. Pipelines would normally parallel the access roads, using the access road disturbance as part of the working area to construct the pipeline. The disturbance required for the parallel road and pipeline is projected to average 35 feet in width. Pipelines would also typically be buried, but surface lines may also be used if they reduce environmental impact, such as in a steep area that would be difficult or impossible to reclaim. Using the average disturbance of 7.0 acres per well, total disturbance projected over the 20 year period would be 147 acres.

*2. No Surface Occupancy Alternative:*

Under this alternative, a No Surface Occupancy lease stipulation would be placed on future oil and gas leases in the area. The stipulation could not be excepted or waived. This alternative would prevent physical placement of surface facilities and any related surface disturbance within the area, on new leases only. Under this alternative, development could occur within the existing leased area. On existing leases 4 wells are expected to be developed over the 20 year period. This is projected to result in 7 acres of disturbance for each well, including roads and pipelines, resulting in a total projected surface disturbance of 28 acres. This alternative is inconsistent with the Grand Junction RMP and would require an amendment to it.

*3. No Action Alternative:*

No leasing inside the area was considered, but not carried forward because the No Surface Occupancy alternative would protect the wilderness characteristics, but still allow for potential development of some or all of the oil and gas resource. The No Leasing alternative would have been more restrictive than the No Surface Occupancy alternative, but would have the same impacts as that alternative. This would violate BLM policy (BLM 1624 Handbook page 3-11, section 7d1.).

NEED FOR THE ACTION:

BLM is responding to oil and gas lease nominations within the South Shale Ridge area and this action would cover all future leasing in the area.

PLAN CONFORMANCE REVIEW:

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

Name of Plan: Grand Junction Resource Management Plan

Date Approved: January, 1987

Decision Number/Page: 2-7 through 2-11

Decision Language:

To make Federal oil and gas resources available for leasing, except where prohibited by law or where administrative action is justified in the national interest and to make public lands available for economically and environmentally sound exploration and development projects. To avoid health and safety hazards, to protect sensitive resource values from unacceptable impacts and to minimize impacts to lessees from sensitive resource protection and hazard avoidance.

The SSR area is located in an area identified in the RMP as one with emphasis on exploration and development of oil, gas and coal resources. Approximately the northeast 50% of SSR lies in the area designated for oil and gas emphasis, with the southwest 50% of the area located within the coal emphasis area.

### CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

According to NEPA, one of the responsibilities of the Federal Government is to “assure for all Americans safe, healthful, productive and aesthetically and culturally pleasing surroundings.” Elements listed by NEPA as critical to human environment are named and described in specific document elements below. Affected Environment, Environmental Consequences and Mitigation Measures are included.

### STANDARDS FOR PUBLIC LAND HEALTH

In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. Standards exist for the following areas:

1. upland soils
2. riparian systems
3. plant and animal communities
4. threatened and endangered species
5. water quality

Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because standards exist for each of these five categories, findings must be made for each of them in an environmental analysis. These findings are also described in specific elements listed below.

### CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

#### AIR QUALITY

##### Affected Environment:

Air quality is documented in the RMP on page 2-1. The proposed action does not make any changes to air quality in the area.

##### Environmental Consequences and Mitigation:

The impacts on air quality are analyzed in the draft Grand Junction Resource Plan and EIS on page 200. The proposed action would not change the impacts from those analyzed in this document.

#### AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: There will be no ACECs affected by this proposal.

Environmental Consequences and Mitigation: None

## CULTURAL RESOURCES

### Affected Environment:

Minimal cultural resource survey has been conducted, but where it has, a moderate density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places have been recorded. Most sites are open camps associated with repeated seasonal use and have diagnostic surface artifact scatters and datable subsurface features.

### Environmental Consequences and Mitigation:

*Proposed Action:* Original assessment of impacts to cultural resources from Oil and Gas Management in the RMP (Chap.4-212) is still valid, that activities associated with mineral development would continue to create the greatest potential for site destruction, vandalism, and unauthorized collection of artifacts. Direct impacts to known or newly discovered Cultural Resources are mitigated by policy, in compliance with existing laws and regulations, by RMP stipulations, and can usually be avoided by project redesign. Proposals for data recovery, in cases where avoidance of cultural resources is determined to be unfeasible and the agency's decision is to allow the action, are costly. Data recovery, at a minimum, requires consultation with the State Historic Preservation Officer (36CFR800) and affected tribes (16USC470aa), which can delay implementation. Secondary effects from increasing road infrastructure to an additional 21 miles of road in the area will be minimized by utilizing the RMP stipulation, the closure of new roads preventing increased public access. Public access has been demonstrated to contribute to impacts to cultural resources from recreation (unauthorized collection of artifacts) and off-road vehicle use (unauthorized surface disturbance) (RMP Chap.4-212).

*No Surface Occupancy Alternative:* Direct impacts would be associated with the anticipated four well sites and associated roads and/or pipelines. Secondary effects will occur but would be limited, with only an additional 4 miles of roads in the area which would be closed to public access by following RMP stipulations for limited public access. This alternative would have the least impacts, direct, indirect, and cumulative, to cultural resources and would not have the potential to cause delays associated with cultural resource regulatory compliance.

## ENVIRONMENTAL JUSTICE

### Affected Environment:

This project offers no disproportionately high or adverse human health or environmental effects on minority populations or low-income populations.

Environmental Consequences and Mitigation: None

## FARMLANDS, PRIME AND UNIQUE

Affected Environment: No Prime and Unique Farmlands are affected by this proposal.

Environmental Consequences and Mitigation: None

## FLOODPLAINS

Affected Environment: There are no floodplains associated with this proposed action.

Environmental Consequences and Mitigation:

There would be no environmental consequences, so no mitigation is needed for this proposed action.

## INVASIVE, NON-NATIVE SPECIES

Affected Environment:

The southern boundary of the South Shale Ridge area was intensively inventoried for noxious weeds in 2003. The northern boundary along the top of South Shale Ridge is being inventoried for weeds during this (2004) field season. Most of the weeds are found in the northeast corner of the inventory unit along roads and around ponds. A few infestations are located along the northern perimeter road. The interior is fairly clean. The primary species is whitetop, which is most abundant near Dry Fork. Russian knapweed is also found. A few houndstongue plants are scattered throughout the area. Whitetop has demonstrated the greatest ability to spread quickly in the greater Roan Creek drainage, and rate of spread increases as elevation and associated precipitation increase. Russian knapweed is persistent and spreads by seed along roads, but infestations do not grow as quickly once established. Houndstongue spreads by seed, and if near water holes or roads, spread rate is increased by vehicles and animals.

Environmental Consequences and Mitigation:

*Proposed Action:* The standard stipulations for weed management on oil and gas facilities apply regardless of location in the field office. Each proposed well in the future would be covered by an EA and weed maps looked at during that process. If there is a weed issue for a proposed well it would be covered in that EA. Proposed sites may or may not pose immediate weed problems. Regular inventories by BLM are finding weed infestations at early stages in other areas of the field office and it can be assumed the same would apply here.

*No Surface Occupancy Alternative:* Given a purely weed management viewpoint, less surface occupancy is best for mitigating weed problems. This is true whether it is a recreation, range, wildlife, fire, ROW or any other proposed action that would disturb the surface and open up an area for opportunistic weeds. Reality is a balance with weed mitigation measures for all activities.

## MIGRATORY BIRDS

Affected Environment:

All native birds in this area, except wild turkeys and blue grouse, are protected from direct physical harm by the Migratory Bird Treaty Act (MBTA). The act does not protect the habitat of these birds. Even so, it is the variety of habitats that will indicate the environment (birdlife) that is subject to effects from the predicted oil and gas activity. Cliff, rocky desert shrub, sagebrush, pinyon-juniper, mountain shrub, and Douglas fir communities, as well as 30 ponds, one spring with wet meadow vegetation, and a narrow line of ponderosa pines make up

the habitat within the proposed lease area (see Vegetation section below). The US Fish & Wildlife Service has a list of “Birds of Conservation Concern,” which indicates that avoiding harm to these species will go a long way toward meeting the requirements of the MBTA. The birds on this list that are likely or known to nest in the habitats of the South Shale Ridge area include Golden Eagle, Prairie Falcon, Flammulated Owl, Williamson’s Sapsucker, Gray Vireo, Pinyon Jay, Virginia’s Warbler, Black-throated Gray Warbler and Sage Sparrow. This is nine of the 29 species on the list (Southern Rockies/Colorado Plateau sublist).

Environmental Consequences and Mitigation:

The RMP limitation for steep slopes would prevent oil and gas activities from approaching close enough to disturb nesting eagles and falcons. Steep slopes may also preserve flammulated owl and Williamson’s sapsucker, the species that depend on Douglas fir habitat, as well as Virginia’s warbler and other species dependent on the mountain shrub community. The RMP stipulation to protect winter range critical to deer may help prevent harm to the early-nesting species of pinyon jay. The vireo, warblers, and sparrow are the species most vulnerable to nest destruction. At application time, most oil and gas permits would have a condition of approval excluding removal of vegetation for the period of May 15 to July 15. This help to avoid risk to all area birds, including the ones of conservation concern. The 21 reserve pits predicted for the Proposed Action do not represent a large risk to birds, based on observations in this area. However, the 4 reserve pits of the No Surface Occupancy Alternative would, of course, create 81 percent less of a chance to kill birds from viscous liquid saturation.

NATIVE AMERICAN RELIGIOUS CONCERNS

Affected Environment:

No Traditional or Religious Values are known to be present in the area. Rock art and open camps associated with Ute occupation have been found in the area. These sites are important to the tribes that traditionally used the area; the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and the Northern Ute represented by the Uintah & Ouray Tribal Business Committee. Information letters have been sent to the Tribal Council of these three tribes to initiate consultation, which would occur at the tribe’s request and convenience.

Environmental Consequences and Mitigation:

*Proposed Action:* Direct impacts to known or newly discovered Cultural Resources can be avoided by project redesign. Proposals for data recovery, in cases where avoidance of cultural resources is determined to be unfeasible, and the decision is made to allow the action, may be of concern to the tribes. The BLM’s knowledge of the presence of Traditional or Religious Values is dependent on the response of the Tribal Council and involvement of tribal members. Values that are not communicated to the BLM could be impacted.

*No Surface Occupancy Alternative:* Limited surface disturbing impacts would occur within the area, which would decrease the likelihood of impacting Traditional or Religious Values.

## THREATENED, ENDANGERED, AND SENSITIVE SPECIES (includes a finding on Standard 4)

### Affected Environment:

There are up to five BLM sensitive species of bats that may occur sporadically to regularly in the South Shale Ridge area. The ESA-listed threatened Bald Eagle roosts in the area regularly in winter. Other BLM sensitive species in the area include Northern Goshawk, Greater Sage-grouse, Midget-faded Rattlesnake, and probably Great Basin Spadefoot Toad. A few goshawks winter along South Shale Ridge. There are no records of sage grouse in the area, but two were reported nearby in Corcoran Wash on December 4, 1980 (23 years ago). Roost piles were found in 1991 (13 years ago) a mile and a quarter from the area, near Castle Rock, giving evidence of winter use. From these records, it is suggested that the sagebrush parks along the boundaries of the area may occasionally host a few wintering sage grouse. If these parks were once vital sage grouse habitat, they are no longer. Rattlesnakes are scarce and apt to be found only by experts. The Spadefoot toad is presumed to be resident, since it is known in the nearby Hunter Canyon area of the Book Cliffs, with similar geology and habitat. Outside the project area, but within the potential area of impact, are the four endangered river fishes of the Colorado River which could potentially be affected by siltation (see Surface Water).

There is one ESA-listed plant species, *Sclerocactus glaucus*, a candidate plant species, *Phacelia submutica*, and one BLM sensitive plant, *Astragalus debequaeus*, within the South Shale Ridge area.

### Environmental Consequences and Mitigation:

*Proposed Action:* There is evidence that an operating gas well-drilling rig within 3 miles of a sage grouse strutting ground, or lek, can affect the number of males and female birds that will come to the lek (Holleran & Anderson. 2004. *Sage-grouse response to natural gas field development in northwestern Wyoming*. In: Proceedings of the 24<sup>th</sup> meeting of Western Assoc. of Fish & Wildlife Agencies' Sage and Columbian Sharp-tailed Grouse Technical Committee, Wenatchee, WA). Since there are no leks within 3 miles of the South Shale Ridge Area and very little evidence of any sage grouse presence, the predicted oil and gas development activity would have almost no chance of affecting sage grouse.

When applications are submitted for oil and gas developments, environmental assessments are required and inventories are conducted for special status species (endangered, threatened, proposed, candidate, and sensitive) that may be involved on the proposed sites. Where special status plant species concentrations are highest, a stipulation is applied to oil and gas leases to protect endangered and threatened species (Map 1). An additional stipulation is also being applied to all new leases to protect all special status species. Federal regulations allow BLM to relocate proposed oil and gas facilities up to 200 meters (43 CFR 3101.1-2). Well pads, roads and pipelines can be located in order to avoid impacts to special status species, under the authority of these regulations and stipulations. Therefore, twenty-one wells drilled over a twenty year period at the average spacing of one per section would be of no consequence to any of the species mentioned above.

### Finding on the Public Land Health Standard 4 for Threatened & Endangered species:

The standard is being met in the South Shale Ridge area. There would be no affect on any ESA-protected animal or plant species.

## WASTES, HAZARDOUS OR SOLID

### Affected Environment:

Solid and hazardous wastes are not a part of the natural environment but could be introduced during the implementation of the proposed action and the no surface occupancy option, as detailed below.

### Environmental Consequences and Mitigation:

*Proposed Action or No Surface Occupancy Alternative:* BLM Instruction Memoranda numbers WO-93-344 and CO-97-023 require that all National Environmental Policy Act documents list and describe any hazardous and/or extremely hazardous materials that would be produced, used, stored, transported, or disposed of as a result of a proposed project. The Glenwood Springs Resource Area, Oil & Gas Leasing and Development, Draft Supplemental Environmental Impact Statement (June, 1998), Appendix L, Hazardous Substance Management Plan, contains a comprehensive list of materials that are commonly used for projects of this nature in this region. It also includes a description of the common industry practices for use of these materials and disposal of the waste products. These practices are dictated by various Federal and State laws and regulations, and the BLM standard lease terms and stipulations which would accompany any authorization resulting from this analysis. The document referenced above is hereby incorporated into and made a part of this Environmental Assessment Record. This document is available on the internet at:

<http://www.co.blm.gov/nepa/rmpdocs/gsfodocs/gsfopa.htm>

The most pertinent of the Federal laws dealing with hazardous materials contamination are:

The Oil Pollution Act (Public Law 101-380, August 18, 1990) - This law prohibits discharge of pollutants into waters of the US, which by definition would include any tributary, including any dry wash that eventually connects with the Colorado River.

The Comprehensive Environmental Response, Compensation, and Liability Act (Public Law 96-510 of 1980)B This law provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment. It also provides national, regional, and local contingency plans. Applicable emergency operations plans in place include the National Contingency Plan (40 CFR 300, required by section 105 of CERCLA), the Region VIII Regional Contingency Plan, the Colorado River Sub-Area Contingency Plan (these three are Environmental Protection Agency produced plans), the Mesa County Emergency Operations Plan (developed by the Mesa County Office of Emergency Management), and the BLM Grand Junction Field Office Hazardous Materials Contingency Plan.

The Resource Conservation and Recovery Act (RCRA) (Public Law 94-580, October 21, 1976.) - This law regulates the use of hazardous substances and disposal of hazardous wastes. Note: While oil and gas lessees are exempt from RCRA, right-of-way holders are not exempt from this legislation. RCRA strictly regulates the management and disposal of hazardous wastes.

Emergency response to hazardous materials or petroleum products on BLM lands are handled through the BLM Grand Junction Field Office contingency plan (referenced above). BLM would have access to regional resources if justified by the nature of an incident.

Possible pollutants that could be released during the construction phase of this project would include: diesel fuel, hydraulic fluid, lubricants, and drilling fluids. These materials would be used for refueling and maintaining drilling equipment and vehicles and for the actual drilling itself. Surface water or groundwater could be impacted. Pollutants that might be released during the operational phase of the project would include condensate, produced water (if the wells in the area produce water) and glycol (carried to the site and used as antifreeze.) While uncommon, a transportation accident could occur which could result in a release of any of these materials. A release could result in contamination of surface water or soil. Improper casing and cementing procedures could result in the contamination of groundwater resources. In the case of any release, emergency or otherwise, the responsible party would be liable for cleanup and any damages. Depending on the scope of the accident, any of the above referenced contingency plans would be activated to provide emergency response. At a minimum, the BLM/Grand Junction Field Office contingency plan would apply.

These laws, regulations, standard lease stipulations and contingency plans/emergency response resources should adequately mitigate any hazardous or solid waste issues associated with this project.

## WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

### **Surface Water**

#### Affected Environment:

The proposed lease area lies within the Dry Fork, Coon Hollow, and Sulfur Gulch watersheds. All drainages are ephemeral, and consequently are virtually dry. The exception is the few days each year when flow is generated from summer convective storms and occasionally snowmelt. No water quality data are available for the tributary drainages; however quality is projected to be similar to that of Dry Fork. USGS has operated a gaging station on Dry Fork from 1995 to present. Water quality data collected at the station indicate water with high total dissolved solids (TDS) and high sediment loads during high flow periods. TDS levels over 1500 milligrams per liter (mg/l) were common with sodium, bicarbonate and sulfate the most common ions. Sediment levels over 1,000 mg/l were commonly measured during higher flow. The highest sediment concentration was 18,900 mg/l with a flow of 4.1 cubic feet per second.

#### Environmental Consequences and Mitigation

*Proposed Action:* Impacts from Oil and Gas Management on water resources would be the same as described in Chapter 4, page 202 of the Draft RMP and EIS. Those impacts include increases in sedimentation and possibility salinity entering surface stream from construction of roads, pads and pipelines. As noted, water quality impacts decrease to near preconstruction levels after proper rehabilitation. However, without rehabilitation those areas remain significant sediment sources. Mitigation would include those measures found in the Record of Decision, p.B-4 through B-6, as well as site-specific mitigation determined necessary during environmental assessments of APDs and other right-of-way actions. Additionally, the stipulations protecting scenic and natural values, steep slopes, and deer and elk winter range would be applicable to parts of the lease area. These all would reduce the potential water quality impacts from leasing and eventual development. Bottomline, with the lack of surface waters within the lease area, the

intensity of assumed development over the next 20 years, stipulations currently in place and mitigation imposed on the leases, no measurable impact to surface water quality is projected with this action.

*No Surface Occupancy Alternative:* Limited surface-disturbing impacts would occur within the projected 28 acre area. The stipulations identified under the proposed action would be applicable here as well. With less potential disturbance, the potential water quality impacts from drilling and operational activities following leasing would be reduced.

Finding on the Public Land Health Standard 5 for water quality:

No violation of water quality standards would occur with this action; consequently Standard 5 would be met.

## **Ground Water**

### Affected Environment:

The nearest water wells are located to the east along Dry Fork, Roan Creek, and the Colorado River. The wells likely produce water from the shallow alluvial deposits. Potentially usable bedrock ground water may be encountered in the Ohio Creek zone and in lenticular sandstones of the upper Mesaverde. The Cameo water zone has little aquifer potential based on its depth, low permeability, and poor water quality. Bedrock ground water is not currently being utilized in the area.

Water production from coal bed natural gas (CBNG) wells in the SSR area is relatively low, producing on the average 3.56 barrels of water per day per well. This is similar to water production from conventional wells. The water-bearing Cameo coal in this area has a low yield based on limited recharge, low permeability, and other hydrologic characteristics which limit its quantity.

### Environmental Consequences and Mitigation:

In order to protect potentially usable water zones, new wells would be required to have an approved casing and cementing program designed to isolate and protect these zones. Therefore, there would be no impacts on ground water.

Based on the relatively small amount of produced water generated from CBNG and conventional wells in the area, the 21 projected wells are not expected to produce significant quantities of water. The primary difference in impact between coalbed methane and conventional wells in the Grand Junction Field Office Area is the presence of pumpjacks on CBNG well sites. For all wells, the operator would be required to contain all produced water and dispose of the water at approved disposal sites, probably in evaporation ponds. Disposal of produced water would be approved in accordance with the requirements of Onshore Order #7.

### *No Surface Occupancy Alternative:*

There would be no impacts on ground water, similar to the proposed action, except that smaller quantities of produced water would be generated with fewer wells. Casing and cementing requirements would still apply for protection of usable water zones.

## WETLANDS & RIPARIAN ZONES (includes a finding on Standard 2)

### Affected Environment:

There are two springs on the periphery of the SSR area. Neither has been inventoried for riparian/wetland values. One of the springs has been developed as a water source, so the source of the spring was presumably protected when development occurred (Map 3). Pine Gulch was evaluated for riparian characteristics in 1993 and found to be in Properly Functioning Condition (PFC). Land Health Assessments will occur in this region this summer (2004) and PFC will be re-evaluated at this time, so that it can be determined whether Pine Gulch contains attributes needed to continue to qualify it as a riparian area.

### Environmental Consequences and Mitigation:

Riparian values should be protected from drilling activities, and impacts should be addressed and mitigated during the application process for drilling. Any noxious weeds found in the vicinity of riparian areas should be treated by the oil company that is operating in the vicinity, if it is determined that the weed moved from the leased area into the riparian area.

### Finding on the Public Land Health Standard 2 for riparian systems:

Riparian values are functioning within the proposed area and should not be affected by the proposed actions.

## WILD AND SCENIC RIVERS

### Affected Environment:

The Grand Junction BLM manages no wild and scenic rivers, therefore no wild and scenic rivers will be affected by this proposal.

Environmental Consequences and Mitigation: N/A.

## WILDERNESS

### Affected environment:

The South Shale Ridge area is not a designated wilderness area or a wilderness study area (WSA). This area was inventoried by BLM in 1999 and found to contain the following wilderness characteristics:

1. Size: Area has at least 5,000 acres of contiguous land or is of sufficient size to make practicable its preservation and use in an unimpaired condition.
2. Naturalness: Area generally appears to have been affected primarily by the forces of nature, with the imprint of people's work substantially unnoticeable.
3. Solitude: Area has outstanding opportunities for solitude.
4. Primitive and unconfined recreation: Area has outstanding opportunities for a primitive and unconfined type of recreation.
5. Supplemental values: Area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Of the 32,393 acres inventoried, 27,631 acres were found to contain wilderness characteristics. Although the BLM inventoried and found areas in South Shale Ridge that contain wilderness characteristics, BLM has made no land use planning decision to protect or manage for those values/characteristics.

#### Environmental Consequences and Mitigation

*Proposed Action:* New leasing in SSR would result in the drilling of 21 new wells over the next 20 years in areas which are currently undeveloped. Because it is not known exactly which areas would be developed, specific locations of disturbance (concentrated development or development spread over the larger area) are unknown at this time. Impacts from the proposed action on wilderness characteristics could occur, including:

1. **Size:** If developed, 147 acres of the area affected by leasing would no longer contain wilderness characteristics, leaving 27,484 acres of possible wilderness character. Depending on the exact locations of the new wells, the area could be segmented, creating small pockets of roadless areas which may or may not continue to meet the 5,000 acre requirement as established by the Wilderness Act. Those areas which remain 5,000 acres or more may experience a reduction in the other wilderness characteristics as not all characteristics are found on every acre.
2. **Naturalness:** 147 acres would no longer contain naturalness if new access roads, well drilling pads and pipelines are established on this acreage. The imprint of human activity would be evident on those 147 acres. Naturalness values would still be present throughout the SSR area, with the exception of the developed 147 acres. Existing oil and gas developments and range improvement projects were present on the landscape at the time of the wilderness inventory in 1999. Despite the presence of these intrusions, the inventory team determined that the area was natural, and that the imprint of human activity was substantially unnoticeable. Additional intrusions are not likely to affect naturalness of the entire SSR on a landscape level. The level of naturalness may not continue to meet that required at the wilderness level, but would still be evident throughout the area. The value of naturalness could be protected throughout the area through application of existing stipulations and project mitigation.
3. **Solitude:** Solitude would be lost for 147 acres of the South Shale Ridge area if the leases are developed. Additional solitude in undisturbed areas may be lost through the visitor's encounters with oil field workers, associated support workers, and through the presence of oil and gas development infrastructure. Some areas of solitude would remain as the visitor would continue to have the ability to locate places where a perception/feeling of being totally alone could be found. As described in BLM's 1999 inventory, "Particularly noteworthy locations to find these opportunities (for solitude) are the narrow canyons at the upper end of Coon Hollow, on the two distinctive benches in the bowl-shaped area located above the head of Coon Hollow, along portions of South Shale Ridge's long, narrow, and heavily eroded ridgeline, and on the intermittent benchlands lying between the southern boundary and the ridge's south-facing slopes." This description indicates that opportunity to experience solitude within the area is ample, although the outstanding nature of the solitude experience required by the Wilderness Act would likely be diminished.
4. **Primitive and unconfined recreation:** If the leased acres are developed, 147 acres would no longer be available for primitive and unconfined recreation. Under the current RMP,

this area is being managed as Recreation Opportunity Spectrum (ROS) management category “semi-primitive motorized.” Under this category, areas are characterized by a predominately unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Motorized use is permitted on designated routes only. As per this ROS description, the BLM is already managing the area for primitive and unconfined recreation where a visitor may participate in activities that require an open, unconfined setting, and which do not demand developed facilities. The area’s size, erosional features, and steep rugged topography, which contribute to the availability of these opportunities, would still be present under the proposed action, although the outstanding nature of the opportunities as required by the Wilderness Act may be diminished.

5. Supplemental values: The visual resources, sensitive plants, and wildlife habitat values of the area found during the wilderness character inventory were recognized in the Grand Junction RMP, 1987. Recognition of these values is demonstrated by the existing stipulations for the area (scenic and natural values stipulation, threatened and endangered species habitat stipulation, and deer and elk winter range stipulation). Impacts to these values would be mitigated through these existing stipulations. Some loss of these values may occur should the leased area be developed in areas not containing these lease stipulations.

#### Environmental Consequences and Mitigation

*No Surface Occupancy Alternative:* Selection of this alternative would prevent physical placement of surface facilities and any related surface disturbance within the area, on new leases. Development on existing leases could occur. On existing leases, 4 wells are expected to be developed over the 20 year period. This would result in 7 acres of disturbance for each well including roads and pipelines, resulting in a total projected surface disturbance of 28 acres. Impacts from the proposed action on wilderness characteristics could occur including:

1. Size: Because of the NSO requirement, only areas under existing leases would experience on-site development. Existing lease areas are generally located around the SSR perimeter. Should these existing leases be developed, the developed acreage would be excised from the wilderness character area. New acreage leased under NSO, in the interior of SSR, would show no evidence of development and would continue to contain at least 5,000 acres of contiguous roadless area. This interior area may or may not contain wilderness characteristics as the area was evaluated in 1999 on a landscape level, or as a whole. Should the interior or portions of the interior continue to contain wilderness characteristics, management of these characteristics would increase in difficulty as the area would no longer contain an identifiable boundary.
2. Naturalness: Because of the NSO requirement, only areas under existing leases would experience on-site development. Due to existing leases being located around the perimeter of SSR, should these leases be developed, naturalness on these perimeter sections would be impacted, with the imprint of human activity more evident on perimeter sections. Naturalness values would generally still be present throughout the SSR area, with the exception of the developed 28 acres. Existing oil and gas developments and range improvement projects were present on the landscape at the time of the wilderness inventory in 1999. Although these intrusions were present, the

inventory team determined that the area was natural, with the imprint of humans work substantially unnoticeable. Additional intrusions are not likely to affect naturalness of the entire SSR on a landscape level. The standard of naturalness may not meet that required at the wilderness level on those perimeter sections, but would still be evident throughout the area. The value of naturalness could be protected throughout the area through application of existing stipulations and project mitigation.

3. Solitude: Because of the NSO requirement, only areas under existing leases would experience on-site development. Because the projected disturbance area would occur on 28 acres within the perimeter of the larger SSR area, solitude would be diminished on these 28 acres. Additional solitude in undisturbed areas may be lost through the visitor's encounters with oil field workers, associated support workers, and through the presence of oil and gas development infrastructure. Areas of solitude would remain, as the visitor would continue to have the ability to locate places where a perception/feeling of being totally alone could be found. As described in BLM's 1999 inventory, "Particularly noteworthy locations to find these opportunities (solitude) are the narrow canyons at the upper end of Coon Hollow, on the two distinctive benches in the bowl-shaped area located above the head of Coon Hollow, along portions of South Shale Ridge's long, narrow, and heavily eroded ridgeline, and on the intermittent benchlands lying between the southern boundary and the ridge's south-facing slopes." As this description shows, opportunity to experience solitude within the area is ample, although the outstanding nature of solitude experience may be diminished on the developed perimeter areas.
4. Primitive and unconfined recreation: Because of the NSO requirement, only areas under existing leases would experience on-site development. Under the current RMP, this area is being managed as Recreation Opportunity Spectrum (ROS) management category "semi-primitive motorized." Under this category, areas are characterized by a predominately unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Motorized use is permitted on designated routes only. As this ROS description demonstrates, the BLM is currently managing the area for primitive and unconfined recreation where a visitor may participate in activities that require an open, unconfined setting, and which do not demand developed facilities. The area's size, erosional features, and steep rugged topography, which contribute to the availability of these opportunities, would still be present under the proposed action, although their outstanding nature would be reduced in developed perimeter sections and may no longer meet the standard required by the Wilderness Act. Other areas throughout the SSR would continue to contain opportunities for a primitive and unconfined type recreation. New acreage leased under NSO would show no evidence of development and primitive and unconfined recreation opportunities on this acreage would not be affected.
5. Supplemental values: Because of the NSO requirement, only areas under existing leases would experience on-site development. The visual resources, sensitive plants, and wildlife habitat values of the area found during the wilderness character inventory were recognized in the Grand Junction RMP, 1987. Recognition of these values is demonstrated in the existing area stipulations (scenic and natural values stipulation, threatened and endangered species habitat stipulation, and deer and elk winter range stipulation). Impacts to these values would be mitigated through these existing stipulations. Some loss of these values may occur should areas not containing lease

stipulations be leased and subsequently developed. New acreage leased under NSO would show no evidence of development and would not affect the visual resources, sensitive plants, or wildlife habitat of the wilderness character area.

## NON-CRITICAL ELEMENTS

The following elements **must** be addressed due to Standards for Public Land Health:

### SOILS

#### Affected Environment:

Soils maps and soil mapping unit interpretations are available in the BLM Grand Junction Field Office and at the Natural Resources Conservation Service office (NRCS), also located in Grand Junction. Soils of the Douglas-Plateau Area, published in 1988, is a survey that was compiled over a number of years preceding the 1988 Final Correlation date, and was acquired through contract with NRCS. Soils affected by specific well sites, access roads, and pipeline proposals would be determined after receipt of the proposal, and soils-related construction and use stipulations would be formulated at that time.

#### Environmental Consequences and Mitigation:

*Proposed Action:* Impacts from oil and gas management would be the same as described in Chapter 4, p.202 of the Draft RMP and EIS; mitigation would include those measures found in the Record of Decision, p.B-4 and B-5, as well as site-specific mitigation determined necessary during environmental assessments of APDs and other right-of-way actions.

*No Surface Occupancy Alternative:* This alternative would result in minimal surface disturbance (four wells), thereby reducing impacts to soils health, and reducing soil erosion and sediment production.

Finding on the Public Land Health Standard 1 for upland soils:

Lease stipulations, and standard and site-specific mitigation measures applied to oil and gas development proposals would allow Standard 1 for upland soils health to be met. Soils Health Standard 1 would also be met by the NSO alternative (and No Action).

### VEGETATION (includes a finding on Standard 3)

#### Affected Environment:

The SSR area vegetation is mostly piñon-juniper woodlands, with some sagebrush parks, mixed mountain shrubs, a few small Douglas fir stands on the ridge-top and some scattered ponderosa pine on Corcoran Peak. The lower elevation p-j woodlands, particularly those with south facing slopes, generally have understories composed of galleta, Indian ricegrass, needle-and-thread, bottlebrush squirreltail, three-awn, cheatgrass, shadscale and phlox. A mid-level p-j woodlands has an understory composed of Indian ricegrass, cheatgrass, Fendler bluegrass, western wheatgrass, broom snakeweed, galleta and big sage. Higher elevation p-j woodlands, especially those with northerly aspects, have understories composed of western wheatgrass, Fendler bluegrass, serviceberry, mountain mahogany, antelope bitterbrush, and occasional

clumps of Gambel oak. Sagebrush parks may have very diverse understories or limited understories, depending on the site. The understory can contain needle-and-thread, western wheatgrass, Indian ricegrass, bottlebrush squirreltail, three-awn, cheatgrass, broom snakeweed, lanceleaf yellowbrush and phlox. The mountain shrub community is dominated by Gambel oak, serviceberry, snowberry, and mountain mahogany. The understory varies from western wheatgrass, bluegrass, mountain and nodding brome and big sagebrush. Douglas fir stands are found on the top of South Shale Ridge in a few scattered pockets. Their understory includes fescue, bluegrass, sedges, geraniums, peavine, snowberry and rose. Ponderosa pine can be found on Corcoran Peak. Its understory contains Gambel oak, fescue and western wheatgrass.

Environmental Consequences/Mitigation:

*Proposed Action:* Under the Proposed Action, the areas subject to surface disturbance will have vegetation removed and would take decades to recover. The rate and extent of the recovery will be dependent on the site potential and the type of reclamation undertaken.

*No Surface Occupancy Alternative:* The No Surface Occupancy alternative would prevent physical placement of surface facilities and any related surface disturbance within the area, on new leases. Within the existing leased area, development could occur. On existing leases, 4 wells are expected to be developed over the 20 year period. This would result in 7 acres of disturbance for each well, including roads and pipelines, resulting in a total projected surface disturbance of 28 acres. This alternative would have the least amount of vegetative disturbance. As in the Proposed Action, disturbed areas would take time to recover and the extent and time for recovery would depend both on the site potential and reclamation efforts.

Impacts from oil and gas management would be the same as described in Chapter 4, p.200 of the Draft RMP and EIS; mitigation would in the Record of Decision, p.B-4 and B-5. When the land is recontoured and a proper mix of native plants seeded on the site, most productive sites should recover.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial):

Land health studies are currently (2004) being conducted in the area. The areas disturbed by development will not meet land health standards during the time facilities and roads are being used. If reclamation is successful, land health can be restored. At full development, the standard 3 for vegetation health will not be changed by the Proposed Action or by the NSO alternative, when the landscape scale is considered.

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: There is minimal aquatic habitat in the proposed project area.

Environmental Consequences and Mitigation: None requested or required.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial):

This proposal should not effect Public Land Health Standard 3 for plant and animal communities from an aquatic wildlife standpoint.

## WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

### Affected Environment:

The RMP EIS states that deer and elk habitat conditions are good in the Roan Creek range, yet the winter forage trend is determined to be declining. More winter range in the area is on private, rather than public land, and the lowered condition of the winter range on private land is determining the general finding of decline. Hay fields on private land are exceptions, as they supplement winter range. Besides deer and elk, other wildlife found in the SSR area is what one would expect to find in the kinds of vegetative communities there. Pinyon-juniper woodland is the dominant community type.

### Environmental Consequences/Mitigation:

Under all alternatives, the winter closure stipulation for deer and elk range (O&G Stipulation #12) would be applied, and as indicated in the RMP EIS, would promote the Colorado Division of Wildlife's big game objectives.

*Proposed Action:* The Proposed Action is predicted to result in 21 wells disturbing 147 acres of forage and cover for wildlife (7 acres/well). Of this, approximately 75 acres would be out of production in the long term, assuming that none of the wells is abandoned (3.6 acres/well). Assuming that the drilling will be evenly spaced throughout the 20 years, there would be 72,000 pounds of forage lost in the two decades. As a way of visualizing the loss of wildlife, consider that all of the loss would be in deer. The projected loss would be 64 deer. In reality, the loss of deer would be less. The loss would be distributed among all the plant consumers, with a ripple throughout the food chain. Other plant consumers include, but are not limited to, elk, cottontail rabbits, rock squirrels, and several smaller rodents and insects. The figure of 64 deer provides a quantified view of the shortfall in animals supportable by the leased area over the first twenty years, most of which would be felt toward the end of the period. Production losses would also continue beyond the 20 year lease period. However, considering all of the productive acres in the South Shale Ridge area and the inevitable losses that attend all oil and gas developments, the loss from wildlife habitat in the South Shale Ridge area is minor--about one third of one percent of the total habitat (75 acres disturbed in the long term / 22,500 productive acres = 0.0033).

*No Surface Occupancy Alternative:* The wildlife losses under the NSO Alternative are estimated to be between 10 and 17 deer (deer equivalents).

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic):

This standard is being met, with problems in the area. The proposed action would not significantly change this situation.

OTHER NON-CRITICAL ELEMENTS:

For the following elements, those brought forward for analysis will be formatted as shown above.

| Non-Critical Element   | NA or Not Present | Applicable or Present, No Impact | Applicable & Present and Brought Forward for Analysis |
|------------------------|-------------------|----------------------------------|---|
| Access                 |                   |                                  | DKT   |
| Cadastral Survey       |                   | DKT                              |   |
| Fire                   |                   | WTF                              |   |
| Forest Management      | DPS               |                                  |   |
| Geology and Minerals   |                   |                                  | BF  |
| Hydrology/Water Rights |                   | JS                               |   |
| Law Enforcement        |                   | DKT                              |   |
| Paleontology           |                   | BF                               |   |
| Noise                  |                   |                                  | DKT   |
| Range Management       |                   |                                  | HM  |
| Realty Authorizations  |                   |                                  | DPL   |
| Recreation             |                   |                                  | BNL   |
| Socio-Economics        |                   |                                  | DKT   |
| Transportation         |                   |                                  | DKT   |
| Visual Resources       |                   |                                  | BNL   |

NON-CRITICAL ELEMENTS ANALYSIS:

## ACCESS AND TRANSPORTATION

Affected Environment:

The general area is encircled by Mesa County Roads V.20, X.50, V.60 and O.90 and Garfield County road 222. The northern boundary is defined by roads under BLM or Private jurisdiction. The boundary of the area is perforated by various roads that were cherry-stemmed out of a potential Wilderness Study Area in the Intensive Wilderness inventory in the early 1980's and these cherry stems were carried into the wilderness character inventory of 1999. Other routes into the area that were deemed "ways" in the intensive inventory were not cherry-stemmed, but were identified as "open routes" in the 1987 RMP and remain so to date. Except for the Coon Hollow road, none of the routes penetrates the boundary for a significant distance. These roads and ways are used for recreation, grazing operations and the oil and gas industry.

Environmental Consequences and Mitigation:

The Proposed Alternative would not change RMP management concerning access and transportation. In the RMP, on page 2-39, Off-Road Vehicle, it is identified that any new industrial roads would be closed to public vehicle use to protect the natural scenic setting. Oil and gas roads would be closed by locked gate or other appropriate methods to prevent public use until oil and gas use is terminated and the roads are reclaimed.

## GEOLOGY AND MINERALS

### Affected Environment:

South Shale Ridge (SSR) is situated within the southeastern portion of the Piceance Basin. The ridge-top portion of SSR consists of the Green River Formation, while most of the sloping terrain below the steep ridge is comprised of the underlying Wasatch Formation. Below the Wasatch is the Mesaverde Group, the upper part of which is exposed in the southwestern portion of SSR. The Mesaverde Group is divided into the Iles Formation (including Rollins, Cozzette, and Corcoran sandstone members) and the overlying Williams Fork Formation, which includes the Cameo Coal zone. Historically, most of the Mesaverde Group gas wells in this area are completed in the Cameo zone, and the Cozzette and Corcoran sandstones. The deeper gas production is from the Dakota Sandstone, which is approximately 4,000' below the Mesaverde. The depth to the Dakota ranges from 6000'-6500' in the southwest portion of SSR to 8000'-8500' in the northeast area.

The primary source of coal bed natural gas (CBNG) in SSR is from the Cameo Coal zone. The entire SSR area is considered to have potential for coal bed natural gas occurrence based on net coal thickness, depth, and gas content. The depth to coal ranges from 1500'-2000' in the southwest portion to 3500'-4000' in the northeast area, which is less than the 5500 foot cutoff generally used for the maximum economic depth. CBNG production in SSR has been confined to the eastern portion of the area. The wells have very low gas production rates, and also low water production.

The entire SSR area is considered to have a high resource potential for the occurrence of oil and gas resources. The lands are underlain by Mesaverde Group (Cameo coals, Cozzette/Corcoran Sandstone), and Dakota Sandstone gas reservoirs which meet the BLM classification criteria for high resource potential.

Although the area has a high resource potential based on the classification criteria, historical development has been relatively low. There are only 13 producible wells in SSR, with the majority of wells having low production rates or shut-in status. Within the 8 township area that surrounds and includes SSR, there are 261 drilled or permitted wells, of which 124 are active gas wells, and 137 are inactive, of which 50 are abandoned either dry hole or depleted producers. 154 of the total wells (84 which are inactive) are in the Shire Gulch field which includes a Federal Unit (Horseshoe Canyon) that is in the later stages of development. Other than the development of the Dakota horizon in the early 1980's and the Cozzette-Corcoran in the early 1990's, activity within the regional study area has been sporadic.

### Environmental Consequences and Mitigation:

*Proposed Action:* New leasing in SSR would result in the drilling of 21 new wells over the next 20 years, in areas which are currently undeveloped. The estimated production over a 20-year period from the 21 wells would range from 2,000,000 to 5,100,000 mcf. Based on the pattern and level of historical production within SSR, with only 13 existing wells and low production rates, most of the projected drilling is likely to consist of exploration and minor expansion of existing fields into currently untested areas having similar geologic characteristics. The major plays which would be targeted include the Cameo coals, Cozzette/Corcoran Sandstones, and Dakota Sandstone. Currently, the Cameo coals are being developed in the eastern portion of SSR, and the Dakota is being developed along the southern edge and western portion. The Cozzette/Corcoran production in Shire Gulch shows a definite northwest trend into the eastern portion of SSR.

The Cameo coal zone contains potentially minable coal beds in areas where the coal is less than 3000' deep. Where minable, CBNG production would serve to degas the coal beds, which could benefit any future mining. In order to protect potentially productive gas zones and any prospectively valuable mineral deposits (coal), new wells would be required to have an approved casing and cementing program designed to isolate and protect these zones. Therefore, there would be no impacts on minable coal beds or prospective gas zones.

Based on the current drilling pattern of about 1 well per section, it is projected that the 21 new exploration wells would have a well density of 1 well per section in the undeveloped area outside sections with existing wells and outside the area which is currently NSO. None of the wells would be directionally drilled because this method is not considered currently economic nor economic under the exploration scenario.

*No Surface Occupancy Alternative:* The new NSO acreage would eliminate 17 of the 21 wells projected to be drilled under the proposed action. There would be 4 wells drilled on existing leases. Because directional drilling is not considered economic, none of the gas reserves would be recovered in the NSO area. The estimated foregone production over a 20-year period from 17 fewer wells would range from 1,640,000 to 4,100,000 mcf.

## RANGE MANAGEMENT

### Affected Environment:

Portions of seven grazing allotments lie within the affected SSR area. All the grazing within these allotments is done with cattle. Included are the following allotments and permittees:

|                                  |   |
|----------------------------------|---|
| Southeast Spears (06739) -       | Jason and Susan Lynch   |
| Coon Hollow Common (06712) -     | Latham Ranches,<br>Donna Koehler,<br>Ned and Lyle Prather,<br>Jason and Susan Lynch |
| Winter Flats Deer Park (06713) - | Albertson Ranch Co.   |
| Red Rock (06745) -               | Latham Ranches  |
| Corcoran Wash (06704) -          | Latham Ranches  |
| Homestead (06740) -              | John Doden  |
| West Spears (06753) -            | John Doden  |

Range improvements in the area consist of ten fences equaling 10.2 miles, 33 reservoirs and retention dams, 3 water catchments, and 2 developed springs. There are cattle guards on most of the major roads that service the area. (Map 3)

### Environmental Consequences and Mitigation:

*Proposed Action:* Under the Proposed Action, some available livestock forage would be reduced in the short term due to surface disturbance, but would be recovered after reclamation is completed. The addition of new roads would help the permittees access the allotments but the increased vehicle traffic would pose a hazard to grazing livestock. The hazard could be mitigated with proper signing.

Most range improvements will not be affected by gas development, except for cattle guards that can be damaged by increased traffic. The damage to cattle guards can be mitigated by assigning proper maintenance responsibility to the companies using the roads in the area.

*No Surface Occupancy Alternative:* The No Surface Occupancy alternative would have the fewest impacts to grazing and range management.

#### REALTY AUTHORIZATIONS:

##### Affected Environment:

The surface and mineral estates of the subject lands are owned by the United States. The Master Title and Oil and Gas Plats indicate the following valid existing land uses:

##### Oil and Gas Leases:

COC 012656A  
 COC 012656  
 COC 012657  
 COC 012657A  
 COC 012648  
 COC 012648A  
 COC 012651A  
 COC 024604  
 COC 011356  
 COC 012651  
 COC 051177  
 COC 052685  
 COC 044757  
 COC 046161  
 COC 012645A  
 COC 012645  
 COC 012747  
 COC 012746  
 COC 010895  
 COC 012736  
 COC 012735  
 COC 012737  
 COC 036624  
 COC 052677  
 COC 052678  
 COC 012739  
 COC 010607  
 COC 009380  
 COC 058680  
 COC 012642

**Rights-of-way:**

|            |                                  |
|------------|----------------------------------|
| C 34088    | Road on southern boundary        |
| C 31077A   | Pipeline near southern boundary  |
| COC 64328  | Pipeline near southeast boundary |
| C 40227    | Pipeline near eastern boundary   |
| C 0123147A | Pipeline near eastern boundary   |
| COC 66164  | Road near eastern boundary       |
| C 31077 I  | Pipeline near eastern boundary   |
| C 31077 E  | Pipeline near eastern boundary   |

**Mining claims:**

According to the LR 2000 mining claim database as of July 6, 2004, there are no mining claims of record in this area.

**Environmental Consequences and Mitigation:**

The Proposed Action and the NSO alternative would not conflict with existing land uses. The existing land uses listed above have valid existing rights which would continue under either alternative. Existing right-of-way grant holders could maintain their rights-of-way, within the constraints of their grant stipulations, without additional authorization from BLM. Existing oil and gas lease holders could continue to drill wells and construct infrastructure to develop their lease rights, within the constraints of their leases, drilling authorizations, and sundry notices.

**NOISE****Affected Environment:**

Noise in the area is currently light to moderate, increasing near the boundary. Noise is generated mostly by vehicles on county roads that surround the area as well as oil and gas sites and roads around the edges of the area.

**Environmental Consequences and Mitigation:**

Oil and gas projects would introduce short-term noise from construction, drilling, production and reclamation operations inside the area. Noise would be associated with construction equipment, drilling equipment and pumpjacks on coalbed natural gas wells. Per well, construction would generally average one week, drilling would average 3 weeks and reclamation would average one week per well. The pumpjacks in this area generally work on an intermittent basis and are turned on and off depending on the gas production necessary and water loading in the formation. Venting of gas to clear lines of water could occur on a very intermittent basis that cannot be predicted. Construction, drilling and reclamation noises are moderate, but can be heard for long distances in this quiet environment. Venting of high pressure gas can be very noisy. Standard noise reduction equipment such as mufflers can be required as conditions of approval if necessary.

**SOCIOECONOMICS****Affected Environment:**

Socioeconomic impacts of leasing are documented in the Grand Junction RMP/EIS Draft 1985 on page 217.

## RECREATION

### Affected Environment:

The South Shale Ridge area was not classified as a special or intensive recreation management area in the RMP and therefore falls into the Grand Junction Extensive Recreation Management Area (ERMA). ERMAs are managed in a custodial manner, with no significant recreation infrastructure installation, improvements, or management presence. The South Shale Ridge area was designated as Recreation Opportunity Spectrum (ROS) management category “semi-primitive motorized.” Under this category, areas are characterized by a predominately unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site recreation controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and the safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is permitted. South Shale Ridge carries the off-highway vehicle designation of “limited to designated routes.” Under this designation, motorized travel is limited to designated roads and trails. Current recreation use of the area is low, with some motorized vehicle play, camping, hunting, horseback riding, sightseeing, hiking, and driving for pleasure. The most common entrance point to the SSR area is through the town of De Beque and west along the southern access road. Because this is the most common access into the larger area, most visitors pass existing energy development features on both public and private lands west of De Beque and along the south access road. Most existing visitors to the area have become accustomed to viewing these manmade, industrial features and may have experienced some interaction with oil field workers. Those recreational visitors entering the SSR area through De Beque and west along the northern access road and those traveling along the Spear Hunter Access road do not encounter as many energy development features as along the south access, primarily due to application of the existing oil and gas leasing stipulations. Existing recreation users of the area have some expectation that they will view some industrial field features entering and traveling through the SSR area and that they will encounter additional industrial features throughout the area.

### Environmental Consequences and Mitigation:

*Proposed Action:* New leasing in SSR may impact some recreation opportunity areas, however recreation opportunities would remain prevalent throughout the entire SSR landscape. Current recreational users of the area are accustomed to viewing wells and other industrial development and the placement of an additional well each year on site is not likely to deter users from the site nor impede recreational pursuits. Most users would continue to use the area as they would have knowledge of the industrial presence and an expectation of viewing some industrial field features on site within the SSR area. Creation of additional routes to access well pad locations or for other development or maintenance needs would not provide additional mileage for motorized recreational travel as these routes are available for non-motorized, administrative, and/or permitted uses only. The recreating public may have interaction with oil field workers. Past interaction has largely been positive.

*No Surface Occupancy Alternative:* Selection of this alternative would prevent physical placement of surface facilities and any related surface disturbance within the area on new leases. Development on existing leases could occur. Impacts on recreation use through this alternative

would be nominal. Current recreational users of the area are accustomed to viewing wells and an industrial field type setting so the placement of 4 additional wells over a 20 year time frame, over the larger SSR landscape would not deter users from the site nor impede recreational pursuits. Creation of additional routes to access well pad locations or for other development or maintenance needs would not provide additional mileage for recreational travel as these routes are available for non-motorized, administrative and/or permitted uses only. Opportunities for recreation in the area would continue to be present.

## VISUAL RESOURCE MANAGEMENT

### Affected Environment:

The South Shale Ridge area is designated in the RMP as VRM Class III. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The area contains multiple oil and gas lease stipulations as well as a VRM Class III designation. The application of these stipulations to development and VRM mitigation tools precludes many impacts to visual resources. 81% of the area contains scenic and natural value (SNV) oil and gas lease stipulations (Map 1). This stipulation is more restrictive on development than the VRM Class III designation and is intended to protect unique geologic features of the area. 21% of the area contains a Steep Slopes/No Surface Occupancy stipulation. Oil and gas development has occurred in the SSR area with visual mitigation measures applied to this development. Specifically, along the southern access road west from De Beque, a number of oil and gas development features exist on the landscape. These features located on BLM have been designed and placed so as to minimize contrast with the characteristic landscape.

### Environmental Consequences and Mitigation:

*Proposed Action:* New leasing in SSR would result in the drilling of 21 new wells over the next 20 years in areas which are currently undeveloped. Total disturbance projected over the 20 years would be 147 acres. Should the area be leased and subsequently developed, impacts to visual resources may occur on the developed areas. Because it is not known which areas would be developed, specific locations of disturbance (concentrated development or development spread over the larger area) are unknown at this time. Views from some observation points would contain evidence of oil and gas operations in the area, including new access roads, well pad disturbance and features, and pipelines. The design and siting of this development would include visual impact mitigation measures.

Visual impacts could be mitigated through designing the elements of disturbance as follows:

1. Well drilling pads should be located away from prominent topographic features which tend to attract visitors. Existing vegetation and topographic forms would be used to screen the pads from existing roads or features which draw the attention of the visitor. Well drill pad features would be painted with an earth tone color two or three shades darker than existing background landscape colors.
2. Access roads should mimic the natural forms of the landscape, avoiding long straight lines. Unnecessary disturbance should be avoided by minimizing the number of roads, accessing

multiple well sites from one road, and locating the roads in natural breaks in the topography and vegetation.

3. Pipelines. Surface pipelines should be painted with an earth tone color two or three shades darker than existing background landscape colors and should follow the naturally occurring line and form of the existing landscape. When burying pipelines, the form and line of the existing landscape should be followed, the area of disturbance should be minimized, natural edges should be created in the landscape, the disturbed area should be blended/feathered into the surrounding landscape, and the area of disturbance should be revegetated.

*No Surface Occupancy Alternative:* Selection of this alternative would prevent physical placement of surface facilities and any related surface disturbance within the area on new leases. Development on existing leases could occur. Should the existing leases be developed, impacts to visual resources may occur on the developed areas. The existing leases are located around the perimeter of the SSR area (Map 2). Because it is not known which existing lease areas would be developed, specific locations of disturbance around the perimeter of the SSR area are unknown at this time. It is also unknown which oil and gas lease stipulations would apply, as specific locations of disturbance are unknown and not all existing leases contain stipulations. Views from some observation points may contain evidence of oil and gas operations in the area including new access roads, well pad disturbance and features, and pipelines. The design and siting of this development would include visual impact mitigation measures as was done for existing oil and gas development within the SSR area. No impacts to the visual resource would occur under the NSO alternative. Visual impacts from development of existing leases may still occur, but could be mitigated as described, above, under the proposed action.

#### IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

See Draft 1985 GJRA RMP/EIS impact section page 222

#### CUMULATIVE IMPACTS SUMMARY

The cumulative impacts of the proposed action were covered in the GJRA RMP/EIS. See Draft 1985 GJRA RMP/EIS impact section page 200 to 218.

#### PERSONS / AGENCIES CONSULTED

Southern Ute Indian Tribe  
 Ute Mountain Ute Tribe  
 Uintah & Ouray Tribal Business Committee  
 State Historic Preservation Office

INTERDISCIPLINARY REVIEW:

| <u>Name</u>                               | <u>Title</u>                   | <u>Area of Responsibility</u>   |
|---|--------------------------------|---|
| Tom Bargsten                              | Surface Reclamation Specialist | Soils   |
| Aline LaForge                             | Archaeologist                  | Cultural Resources, Native American Religious Concerns                                |
| Dave Trappett                             | Environmental Prot. Specialist | Access, & Transportation, Noise, Air Quality  |
| Britta Laub/ Gene Arnesen<br>Wade Johnson | Outdoor Rec. Planner           | Recreation, VRM, Wilderness, ACECs, Wild & Scenic Rivers, NCA                         |
| Jim Dollerschell                          | Range Management Specialist    | Range, Wild Horse & Burro Act   |
| Bruce Fowler                              | Geologist                      | Geology, Paleontology   |
| Alan Kraus                                | Hazard Materials Specialist    | Hazardous Materials   |
| David Lehmann                             | Supervisory Nat. Res. Spec.    | Land Status/Reality Authorizations  |
| Ron Lambeth                               | Wildlife Biologist             | Migratory Bird Treaty Act, T&E Species, Wildlife-Terrestrial                          |
| Harley Metz                               | Ecologist                      | Range, Land Health Assessment   |
| Lynae Rogers                              | Range Management Specialist    | Range, Riparian, Flood Plains   |
| Jim Scheidt                               | Hydrologist                    | Water Quality, Hydrology, Water Rights  |
| David L. Smith                            | Fisheries Biologist            | T&E Species, Wildlife-Aquatic   |
| David P. Stevens                          | Natural Resource Specialist    | Forestry, Environmental, Justice, Prime & Unique Farmlands, Environmental Coordinator |
| Mark Taber                                | Range Management Specialist    | Invasive, Non-Native Species (Weeds)  |
| W. Tim Foley                              | Fire Management Officer        | Fire  |

**FONSI****CO-130-2004-083-EA**

The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

RATIONALE:

**DECISION RECORD**

DECISION: It is my decision to

RATIONALE:

MITIGATION MEASURES:

COMPLIANCE/MONITORING:

NAME OF PREPARER:

NAME OF ENVIRONMENTAL COORDINATOR: /s/ David P. Stevens

DATE:

SIGNATURE OF AUTHORIZED OFFICIAL: \_\_\_\_\_  
GRAND JUNCTION, Field Manager

DATE SIGNED:

APPENDICES:

ATTACHMENTS:

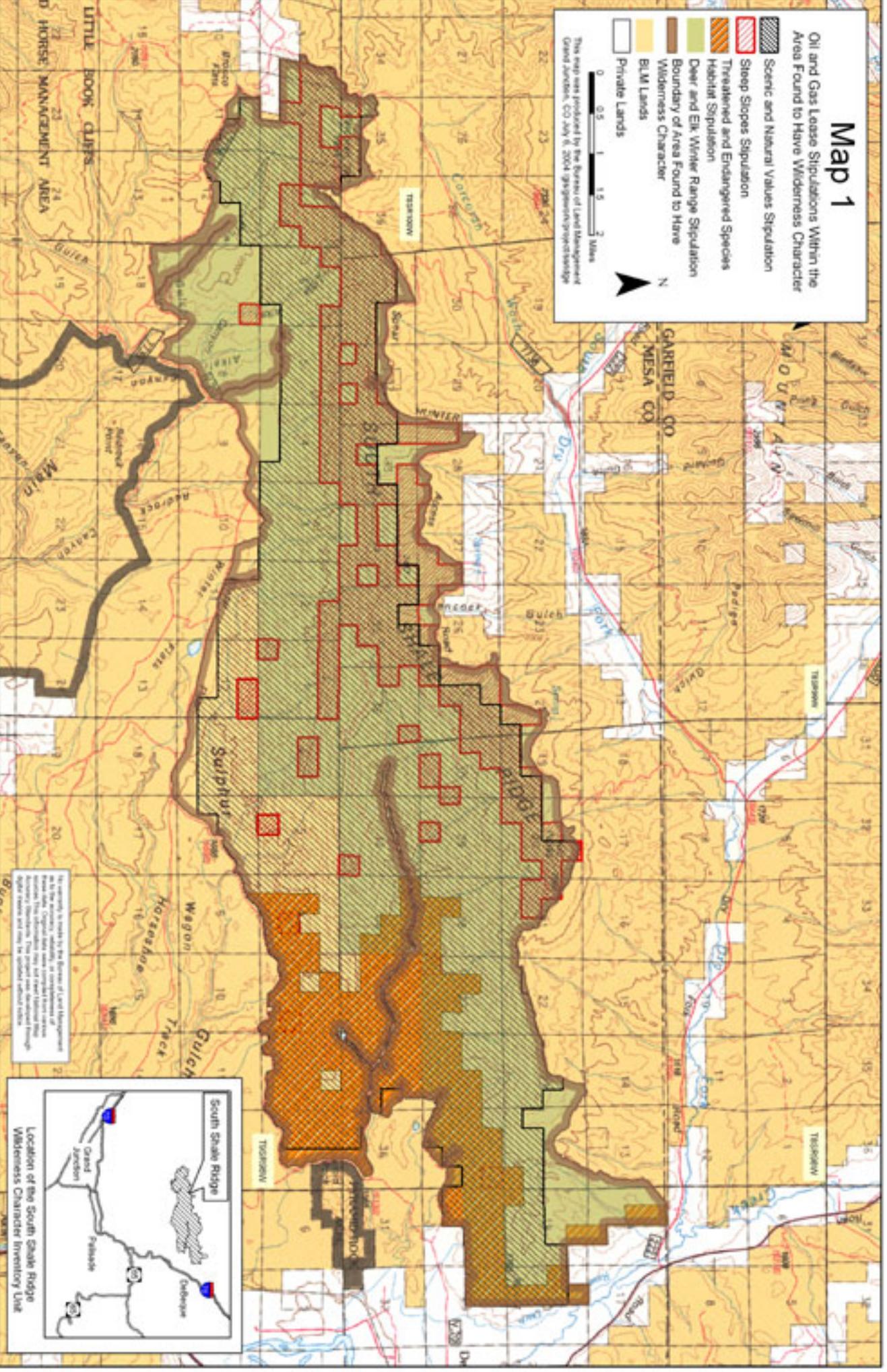
# Map 1

Oil and Gas Lease Stipulations Within the Area Found to Have Wilderness Character

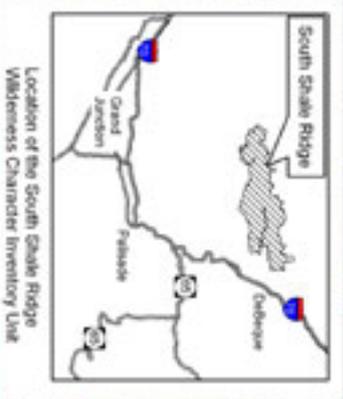
- Scenic and Natural Values Stipulation
- Slope Stipulation
- Threatened and Endangered Species Habitat Stipulation
- Deer and Elk Winter Range Stipulation
- Boundary of Area Found to Have Wilderness Character
- BLM Lands
- Private Lands

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Grand Junction, CO July 6, 2004 gjeagw@blm.gov

0 0.5 1 1.5 2 Miles



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# Map 3

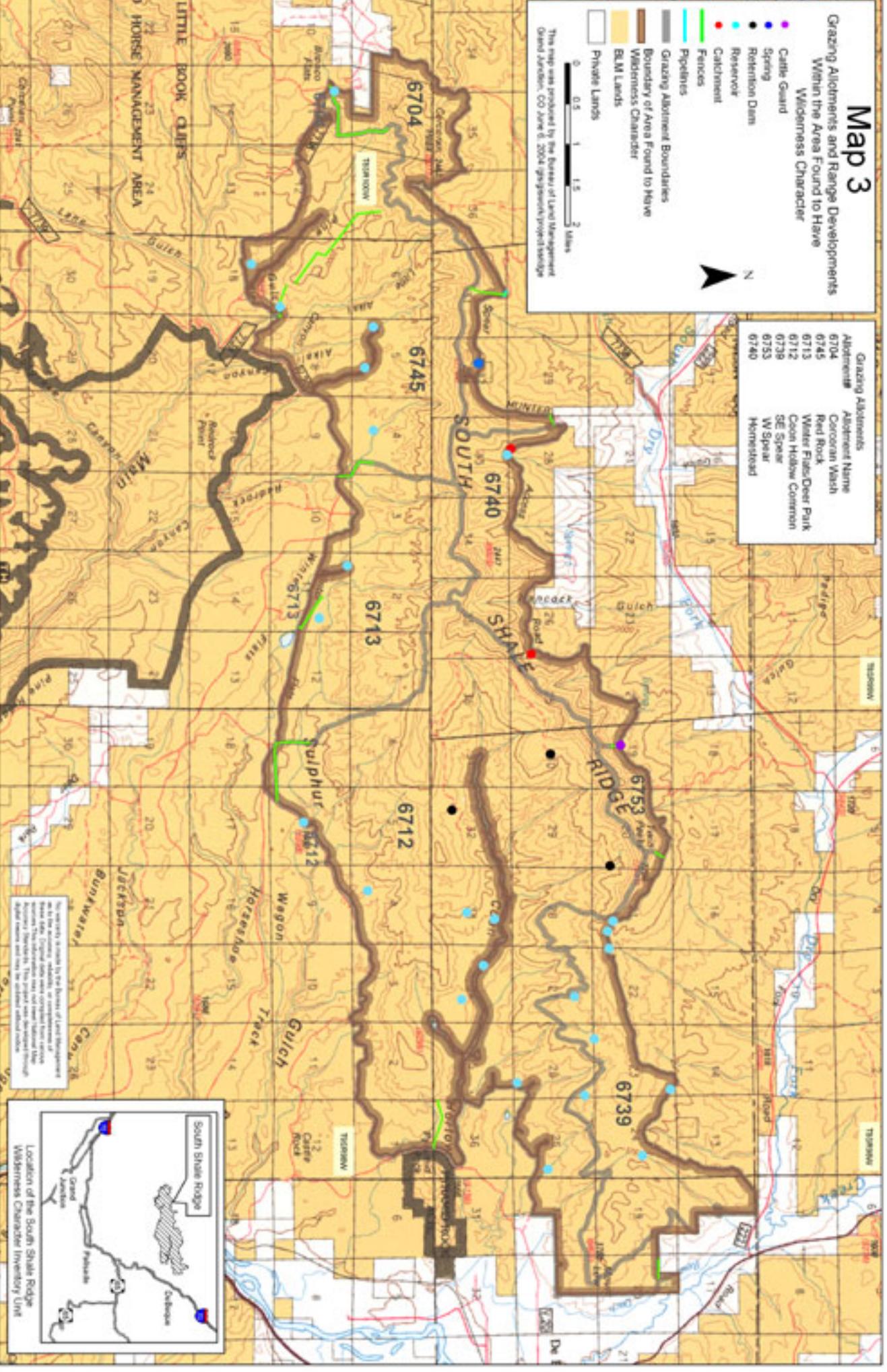
Grazing Allotments and Range Developments  
Within the Area Found to Have  
Wilderness Character

- Cattle Guard
- Spring
- Retention Dam
- Reservoir
- Catchment
- Fences
- Pipelines
- Grazing Allotment Boundaries
- Boundary of Area Found to Have Wilderness Character
- BLM Lands
- Private Lands

0 0.5 1 1.5 2 Miles

This map was produced by the Bureau of Land Management  
Grand Junction, CO June 6, 2004 gja/gsw/nd/proj/and/sldg

| Grazing Allotment | Allotment Name        |
|-------------------|-----------------------|
| 6704              | Corcoran Wash         |
| 6745              | Red Rock              |
| 6713              | Water Falls/Deer Park |
| 6712              | Cedar Hollow Common   |
| 6739              | SE Spahr              |
| 6753              | W Spahr               |
| 6740              | Hornhead              |



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