U.S. Department of the Interior
Bureau of Land Managment
Colorado State Office

GLENWOOD SPRINGS FIELD OFFICE

Roan Plateau Planning Area

Including Naval Oil Shale Reserves
Numbers 1 & 3

Resource Management Plan Amendment
& Environmental Impact Statement

Volume I

FINAL
August 2006

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Glenwood Springs Field Office
50629 Highways 6 & 24
Glenwood Springs, Colorado 81601

In reply refer to: 1610.5-2

August, 2006

Dear Reader:

Enclosed for your review is the Roan Plateau Proposed Resource Management Plan Amendment (RMPA) and Final Environmental Impact Statement (EIS) to the Glenwood Springs Resource Management Plan. This Proposed RMPA considers management for all Bureau of Land Management administered lands and resources in the planning area, including Naval Oil Shale Reserves 1 and 3. The Proposed RMPA was prepared by the Bureau of Land Management (BLM) in consultation with cooperating agencies, taking into account public comments received during this planning effort.

The planning area is administered by the BLM's Glenwood Springs and White River Field Offices in Garfield and Rio Blanco Counties, Colorado. Two Resource Management Plans (RMPs) will be amended within the planning area when the Record of Decision for the Roan Plateau Amendment is approved. The first is the Glenwood Springs RMP approved January 1984; maintained 1988; and amended in November 1991, November 1996, August 1997, March 1999, November 1999, and September 2002. The second is the White River Resource Area RMP, approved in July 1997.

This Proposed RMPA provides a framework for the future management direction and appropriate use of approximately 73,602 acres of Public Land (including both surface and sub-surface estate) located in Garfield and Rio Blanco Counties, Colorado. This document contains both proposed land use planning decisions for a variety of resources and proposed implementation decisions regarding management of specific motorized routes. This Proposed RMPA and FINAL EIS has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy and Management Act of 1976 (FLPMA). The Proposed RMPA is based on elements of Alternatives II and III of the Draft RMPA/ Draft EIS, Cooperating Agency input, and changes made in response to public comment. Alternative III was the Preferred Alternative in the Draft RMPA/Draft EIS which was released on November 19, 2004. This document contains the Proposed RMPA/Final EIS, changes made between the preferred alternative in the Draft RMPA/Draft EIS and the Proposed RMPA/Final EIS; impacts of the proposed plan, a summary of the comments received during the public review period of the Draft RMPA/Draft EIS, and responses to those comments. Land use planning decisions may be protested; implementation decisions regarding management of individual travel management routes may be appealed. Information on both the protest and appeals processes follows.

Protests must be in writing and filed with the BLM Director. All protests must be postmarked or received not later than 30 days after publication of EPA's Notice of availability in the *Federal Register.* Protests may be sent via U.S. mail to: U.S. Department of the Interior, Bureau of Land Management, Director (210), Attention – Brenda Williams, PO Box 66538, Washington DC 20035. Protests sent via express mail or overnight delivery service should be sent to: U.S. Department of the Interior, Bureau of Land Management, Director (210), Attention – Brenda Williams, 1620 L Street, NW, Suite 1075, Washington DC 20036.

The 30–day review and protest period for this Proposed RMPA will begin on the date the Environmental Protection Agency (EPA) publishes its Notice of Availability of the Proposed RMPA and Final EIS in the *Federal Register*, and continue for 30 days. During the 30-period protest period any person who (a.) participated in the planning process for this RMPA, and (b.) has an interest which is or may be adversely affected, may protest approval of this Proposed RMPA and land use planning decisions contained within it. For details refer to 43 Code of Federal Regulations (CFR) 1610.5-2. Only those persons or organizations who participated in the planning process leading to the Proposed RMPA may protest. The protesting party may raise only those issues submitted for the record during the planning process leading up to the publication of this Proposed RMPA. These issues may have been raised by the protesting party or others. New issues may not be brought into the record at the protest stage.

Email and fax protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular mail postmarked, or overnight mail received by, the close of the protest period. Under these conditions, BLM will consider the E-mail or fax protest as an advance copy and the protest will receive full consideration. If you wish to provide BLM with such advance notification, please direct E-mails to *Brenda_Hudgens-Williams@blm.gov* and faxes to (202) 452-5112 (Attn: BLM Protest Coordinator).

IMPORTANT: State that you are protesting a decision in the Roan Plateau Proposed Resource Management Plan Amendment/Final Environmental Impact Statement.
In accordance with 43 CFR 1610.5-2 the protest must contain the following information:

- **The name, mailing address, and telephone number of the person filing the protest.**
- **The "interest" of the person filing the protest (how will you be adversely affected by the approval or amendment of the resource management plan?)**
- **A statement of the part(s) of the Proposed RMPA and Final EIS, and the issue(s) being protested. (To the extent possible, this should reference specific pages, paragraphs, sections, tables, maps, etc., which are believed to be incorrect or incomplete.)**
- **A copy of all documents addressing the issue(s) that the protesting party submitted during the planning process (this is preferred) or a statement of the date they were discussed for the record.**
- **A concise statement explaining why the protestor believes the BLM State Director's proposed decision is incorrect.**

All of these elements are critical parts of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents, or available planning records (e.g. meeting minutes or summaries, correspondence, etc.) To aid in ensuring the completeness of your protest, use the above checklist, or the removable checklist that appears following this letter. A copy of the protest check list is also available online at *http://www.blm.gov/rmp/co/roanplateau*.

The BLM Director will make every attempt to promptly render a decision on the protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior.

BLM's practice is to make comments, including names and home addresses of respondents, available for public review. Individual respondents may request that BLM withhold their names and or home addresses; if you wish BLM to consider withholding this information, you must state this prominently at the beginning of your comments. In addition, you must present a rationale for withholding this information. This rationale must demonstrate that disclosure "would constitute an unwarranted invasion of privacy." Unsupported assertions will not meet this burden. In the absence of exceptional,

documentable circumstances, this information will be released. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

Implementation decisions for travel management will be made in a separate decision document, announced via the Glenwood Springs Field Office NEPA notification process. Unlike land use planning decisions, implementation decisions are not subject to protest under planning regulations but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (Interior Board of Land Appeals). Implementation decisions generally constitute BLM's final approval allowing on-the ground actions to proceed. Where implementation decisions are analyzed as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations. Implementation decisions will be made after BLM (a.) resolves the protests to land use planning decisions and (b.) makes a decision to adopt or modify the Proposed RMPA. Administrative remedies for implementation decisions regarding travel management will take the form of appeals to the Office of Hearings and Appeals. The appeals process for these decisions can be found at 43 CFR 4.21. This type of appeal should not be confused with the protest of land use planning decisions to the BLM Director.

Upon resolution of any protests, an Approved Plan Amendment and Record of Decision (ROD) will be issued. The Approved Plan Amendment will be available to all who participated in the planning process and the public. It will be available in downloadable, CD, and paper formats; either via download through the "Planning" page of the BLM national website (*http://www.blm.gov*), or by mail upon request from the Glenwood Springs Field Office, 50629 Highways 6 & 24, Glenwood Springs, Colorado 81601.

Sincerely,

Jamie E. Connell
Field Manager

Roan Plateau Proposed Resource Management Plan Amendment Protest Critical Item Checklist

As outlined at 43 CFR 1610.5-2 the following items MUST be included to constitute a valid protest.
You may use this optional form, or a narrative letter.
Please read the Privacy Notice and Where and When to Send Your Protest Statements on the reverse side of this form.

Proposed Resource Management Plan Amendment (RMPA) being protested:
Roan Plateau Proposed Resource Management Plan Amendment

Name:
Address:
Phone Number: ( )

What is your interest in filing this protest; how will you be adversely affected by the approval or amendment of this plan?:

Issue or issues being protested:

Detach Along line

Statement of the part or parts of the plan being protested:

Chapter:
Section:
Page:
(or) Map:

Attach copies of all documents addressing the issue(s) that were submitted during the planning process by the protesting party, or an indication of the date the issue(s) were discussed for the record.
List of documents attached:

Date(s) issues were discussed:

A concise statement explaining why the State Director's decisions is believed to be wrong:

Privacy Notice: **The Bureau of Land Management's practice is to make protests, including names and home addresses of respondents, available for public review. Individual respondents may request that we withhold their names and or home addresses, but if you wish us to consider withholding this information, you must state this prominently at the beginning of your protest. In addition, you must present a rationale for withholding this information. This rationale must demonstrate that disclosure would constitute an unwarranted invasion of privacy. Unsupported assertions will not meet this burden. In the absence of exceptional, documentable circumstances, this information will be released.**

Where and When to Send Your Protest: Protests must be in writing and filed with the BLM Director. All protests must be postmarked or received not later than 30 days after publication of EPA's Notice of Availability in the *Federal Register.* Protests may be sent via U.S. mail to: U.S. Department of the Interior, Bureau of Land Management, Director (210), Attention – Brenda Williams, PO Box 66538, Washington DC 20035. Protests sent via express mail or overnight delivery service should be sent to: U.S. Department of the Interior, Bureau of Land Management, Director (210), Attention – Brenda Williams, 1620 L Street, NW, Suite 1075, Washington DC 20036.

Proposed
Roan Plateau Resource Management Plan Amendment
and
Final Environmental Impact Statement

Draft ( ) **Final (X)**

Lead Agency: **United States Department of the Interior, Bureau of Land Management (BLM)**
Type of Action: **Administrative (X)** **Legislative ( )**

Abstract: The Roan Plateau Proposed Resource Management Plan Amendment (RMPA) and Final Environmental Impact Statement analyzes six alternatives for managing approximately 73,602 acres of federal land within the Planning Area in western Colorado in Garfield and Rio Blanco Counties. Alternatives I through V were presented in the Draft Resource Management Plan Amendment and Draft Environmental Impact Statement (Draft). Alternative I is the continuation of present management or No Action alternative. Alternatives II through V and the Proposed Plan present differing balances of land use allocations. The Proposed Plan is the agency-preferred alternative. The Proposed Plan is largely based on Alternative III, the Preferred Alternative in the Draft, although it incorporates changes made in response to public comments and Cooperating Agency input.

Major issues addressed include management of natural gas resources, visual resources/scenic quality, wildlife habitat, fisheries habitat, ecological values, livestock grazing, hunting, recreation, wilderness characteristics, transportation planning, Wild and Scenic Rivers eligibility, identification of watersheds with protective management prescriptions, and designation of special management areas.

How to Protest: Protests must be in writing and filed with the BLM Director. All protests must be postmarked or received not later than 30 days after publication of EPA's Notice of availability in the *Federal Register.* Protests may be sent via U.S. mail to: U.S. Department of the Interior, Bureau of Land Management, Director (210), Attention – Brenda Williams, PO Box 66538, Washington DC 20035. Protests sent via express mail or overnight delivery service should be sent to: U.S. Department of the Interior, Bureau of Land Management, Director (210), Attention – Brenda Williams, 1620 L Street, NW, Suite 1075, Washington DC 20036. Refer to the letter preceding this abstract for additional information.

The 30–day review and protest period for this Proposed RMPA will begin on the date the Environmental Protection Agency (EPA) publishes its Notice of Availability of the Proposed RMPA/FEIS in the *Federal Register*, and continue for 30 days. During the 30-period protest period any person who (a.) participated in the planning process for this RMPA, and (b.) has an interest which is or may be adversely affected, may protest approval of this Proposed RMPA and land use planning decisions contained within it. For details refer to 43 Code of Federal Regulations (CFR) 1610.5-2. Only those persons or organizations who participated in the planning process leading to the Proposed RMPA may protest. The protesting party may raise only those issues submitted for the record during the planning process leading up to the publication of this Proposed RMPA. These issues may have been raised by the protesting party or others. New issues may not be brought into the record at the protest stage.

For Further Information Contact:

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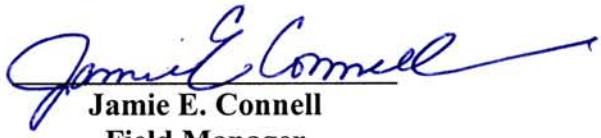
Glenwood Springs, CO 81601

Telephone (970) 947-2800

United States Department of the Interior
Bureau of Land Management
Colorado State Office
Glenwood Springs Field office

Roan Plateau
Proposed Resource Management Plan Amendment
and
Final Environmental Impact Statement

Recommended by:



Jamie E. Connell
Field Manager

Approved by:

Sally Wisely
State Director

August 2006

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Acronyms

AADT	Average Annual Daily Traffic
AACL	Acceptable Ambient Concentration Levels
AAQS	Ambient Air Quality Standards
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ac	acre
ac-ft	acre-feet
AIRFA	American Indian Religious Freedom Act
AMP	Allotment Management Plan
AMS	Analysis of the Management Situation
ANC	Acid Neutralizing Capacity
APCD	(Colorado) Air Pollution Control Division
APD	Application for Permit to Drill
AQRV	Air Quality Related Values
ARPA	Archeological Resources Protection Act
ATV	All Terrain Vehicle
AUM	Animal Unit Month
BA	Biological Assessment
BACT	Best Available Control Technology
bbl	Barrel
BCC	Birds of Conservation Concern
BCF	Billion cubic feet
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
C	degrees Centigrade
CALPUFF	CALifornia PUFF Dispersion Model
CBEF	Center for Business and Economic Forecasting, Inc.
CCR	Colorado Code of Regulations
CDNR	Colorado Department of Natural Resources
CDPHE	Colorado Department of Public Health and Environment
CDPHE-APCD	CDPHE – Air Pollution Control Division
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	CERCLA Information System
CESQG	Conditionally Exempt Small-Quantity Generator
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	Colorado Geological Survey
CNAP	Colorado Natural Areas Program
CNHP	Colorado Natural Heritage Program
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COA	Condition of Approval
COGCC	Colorado Oil and Gas Conservation Commission
CR	County Road

CRCT	Colorado River Cutthroat Trout
CSU	Controlled Surface Use
CWCB	Colorado Water Conservation Board
CWD	Chronic Wasting Disease
CWP	Commercial Wood Products
DAU	Data Analysis Unit
DEIS	Draft Environmental Impact Statement
DEM	Digital Elevation Model
DEQ	Department of Environmental Quality
DO	dissolved oxygen
DOE	[U.S.] Department of Energy
DOLA	[Colorado] Department of Local Affairs
DPC	Desired Plant Community
DRMP	Draft Resource Management Plan
dv	Deciview
EA	Environmental Assessment
ECHO	Enforcement and Compliance History Online
ECR	Ecological Condition Rating
EIS	Environmental Impact Statement
EPA	[U.S.] Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
ESI	Ecological Site Inventory
F	degrees Fahrenheit
FAR	Functioning At Risk
FLAG	Federal Land Managers' AQRV Workgroup
FLPMA	Federal Land Policy and Management Act
FMHN	Field Museum of Natural History
FMP	Fire Management Plan
FMZ	Fire Management Zone
FOOGLRA	Federal Onshore Oil and Gas Leasing Reform Act
FSEIS	Final Supplemental Environmental Impact Statement
ft	feet
GHGs	Greenhouse Gases
GIS	Geographic Information System
GMU	Game Management Unit
gpt	gallons per ton
GSFO	Glenwood Springs Field Office
GSRA	Glenwood Springs Resource Area
HAP	Hazardous Air Pollutants
HMP	Habitat Management Plan
hp	horsepower
I-70	Interstate 70
IB	Information Bulletin
IMPROVE	Interagency Monitoring of Protected Visual Environments
IRIS	Integrated Risk Information System
ISCST3	Industrial Source Complex – Short Term Dispersion Model, Version 3
IWAQM	Interagency Workgroup on Air Quality Modeling
kg/ha-yr	kilograms per hectare-year
LAC	Limit of Acceptable Change

LN	Lease Notice
LQG	Large Quantity Generator
MBF	Thousand Board-Feet
MBO	Thousand Barrels of Oil
MBTA	Migratory Bird Treaty Act
MCF	Thousand Cubic Feet
MCL	Maximum Contaminant Level
µS/cm	microSiemens per centimeter
MCU	University of Colorado Museum
MEI	Maximally Exposed Individual
mg/L	milligrams per liter
MLA	Mineral Leasing Act
MLE	Most Likely Exposure
MM5	Mesoscale Meteorological Model, Version 5
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MMCF	Million Cubic Feet
MSL	Mean Sea Level
MWC	Museum of Western Colorado
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCP	National Contingency Plan
NDIS	National Diversity Information Source
NEPA	National Environmental Policy Act
NF	Non-Functioning
NGD	No [Long-term] Ground Disturbance
NHPA	National Historic Preservation Act
NI	no information
NMNH	National Museum of Natural History
NOA	Notice of Availability
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NOI	Notice of Intent
NOSR	Naval Oil Shale Reserve
NOT	Not Meeting Standards
NPL	National Priority List
NPS	National Park Service
NRC	National Response Center
NRCS	Natural Resources Conservation Service
NREL	National Renewal Energy Laboratory
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
NSR	New Source Review
NSTC-AQ	[[BLM] National Science and Technology – Air Quality
NWPS	National Wilderness Preservation System
NWSRS	National Wild and Scenic River System
OHV	Off-Highway Vehicles (off-road vehicles)
OMP	Operational Management Plan
ONA	Outstanding Natural Area
ORV	Outstandingly Remarkable Values

PA	Programmatic Agreement
PBA	Programmatic Biological Assessment
PCRAMMET	PC Version of EPA Rammet Meteorological Preprocessor Program
PICA	PSD Increment Consumption Analysis
PFC	Proper Functioning Condition
PILT	Payment in Lieu of Taxes
PM	Particulate Matter
PNC	Potential Natural Community
ppbv	Parts per billion by volume
ppm	parts per million
PSD	Prevention of Significant Deterioration
R&PPA	Recreation and Public Purposes Act
RCRA	Resource Conservation and Recovery Act
RCRIS	RCRA Information System
RfC	EPA Reference Concentration
RFD	Reasonable Foreseeable Development
RMP	Resource Management Plan
RMPA	RMP Amendment
RNA	Research Natural Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
SCS	Soil Conservation Service
SH	State Highway
SHPO	State Historic Preservation Officer
SO_2	Sulfur Dioxide
SQG	Small Quantity Generator
sq mi	square miles
SRMA	Special Recreation Management Area
SSC	Species of Special Concern
SSR	Site-Specific Relocation
SVIM	Soil and Vegetation Inventory Method
TDS	Total Dissolved Solids
TL	Timing Limitation
TMA	Travel Management Area
TMDL	Total Maximum Daily Load
TSD	Technical Support Document (for Air Quality)
TSL	Toxic Screening Level
TSP	Total Suspended Particulates
TCF	Trillion cubic feet
UDEQ	Utah Department of Environmental Quality
USC	United States Code
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound
VRM	Visual Resource Management
WFU	Wildland Fire Use
WMA	Watershed Management Area

WRIS	Wildlife Resource Information System
WRFO	White River Field Office
WRRA	White River Resource Area
WSA	Wilderness Study Area
WSR	Wild and Scenic River
WSRA	Wild and Scenic Rivers Act
µg/m^3	micrograms per cubic meter

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Jamie Connell	Petroleum Eng.	B.S., 201 years	Glenwood Springs Field Manager
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Tom Fresques	Wildlife Biology	B.S., 15 years	ACECs, Fish and Wildlife Resources, Sensitive Species
Patrick Gallagher	Petroleum Eng.	B.S., P.E., 23 years	Oil and Gas Resources
Denise Gergen	Cartography	B.S., 7 years	GIS
Gregory Goodenow	Planning	B.S., Grad. Cert., 29 years	Project Manager, Land Use Planning, NEPA
Vaughn Hackett	Realty	B.S., 27 years	Lands and Realty
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Ken Holsinger	Ecology and GIS	B.S., 7 years	GIS
Brian Hopkins	Recreation Planning	B.S., 18 years	Recreation Resources, Transportation
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Craig Nicholls	Air Quality	M.S., 16 years	Air Quality Models

Name	Discipline	Qualifications and Experience	Area of Participation
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Carla Scheck	Ecology	B.S., 12 years	ACECs, Rangeland Resources, Sensitive Species, Vegetation Resources
James Scheidt	Hydrology	B.S., 29 years	Surface Water Hydrology, Soils
James Wilkenson	Geology	B.S., 32 years	Geology and Mineral Resources
Ecology and Environment, Inc.			
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Lauren Barringer	Biology	B.A., 2 years	Administrative Record
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Frederick Groth	Remote Sensing	M.S., 14 years	GIS, Visual Resources
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SUMMARY

SUMMARY

INTRODUCTION

This Proposed Roan Plateau Resource Management Plan Amendment and Final Environmental Impact Statement (Proposed Plan/Final EIS, or RMPA/EIS) presents management alternatives and resultant environmental impacts for lands administered by the U.S. Department of the Interior (USDI), Bureau of Land Management (BLM) in the Roan Plateau Planning Area of west-central Colorado. The management alternatives represent possible amendments to the current management direction under the 1984 Resource Management Plan (RMP) for the Glenwood Springs Resource Area (GSRA), maintained in 1988 and amended in 1991, 1996, 1997, 1999, and 2002, and the 1997 White River Resource Area (WRRA) RMP.

The Planning Area includes 73,602 acres of Federal lands (Federal surface, minerals, or both), of which all but 6,668 acres is also Federal surface. The Federals lands include 44,267 acres of Naval Oil Shale Reserves (NOSRs) Numbers 1 and 3 that are not currently available for oil and gas leasing and development but would become available under the Proposed Plan. The remaining area of Federal lands, including some BLM NOSR lands and some BLM non-NOSR lands, is already available for or actively undergoing oil and gas development. Responsibility for management of NOSRs 1 and 3 was transferred from the U.S. Department of Energy (DOE) to BLM in 1997.

The Planning Area is located primarily in western Garfield County, with a small portion in southern Rio Blanco County. It lies generally north of Interstate 70 (I-70) between the towns of Rifle and Parachute and consists of three visually, geologically, and ecologically distinct areas: (1) semi-desert habitats at lower elevations, (2) relatively moist montane and subalpine habitats at higher elevations, and (3) a band of high and mostly unbroken cliffs separating these areas. The Planning Area drains westward to Parachute Creek, eastward to Government Creek, or southward to the Colorado River.

PROPOSED PLAN FOUNDATION

Transfer of NOSRs 1 and 3 from DOE to BLM was effected by the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85 (the "Transfer Act"). The Roan Plateau RMPA/EIS analyzes options for implementing the Transfer Act, which directed BLM to enter into leases, as soon as practicable, with one or more private entities for the purpose of exploration, development, and production of petroleum. In addition, the Transfer Act stipulates that the transferred lands are to be managed in accordance with the Federal Land Policy and Management Act (FLPMA) and applicable laws.

FLPMA requires the preparation of land use plans for public lands managed by the BLM. The RMP Amendment (the "Plan") resulting from this RMPA/EIS process will establish management prescriptions, resource objectives, and land use allocations for the Roan Plateau Planning Area.

The Proposed Plan presented in this RMPA/EIS represents the "proposed action" within the context of the National Environmental Policy Act (NEPA). The Proposed Plan is the product of an iterative and collaborative process that began in November 2000 with public scoping, consistent with NEPA. This process provided an opportunity for the public, and representatives of Federal, State, county, and local governments and any affected Indian tribes to identify their issues and concerns.

BLM then developed six preliminary alternatives, which were presented to the public in October 2002, and subsequently refined to five alternatives. The five alternatives were published in the Draft RMPA/EIS in November 2004. Following the public comment period, BLM continued to work with Cooperating Agencies, including the Colorado Department of Natural Resources (CDNR) and its agencies (Colorado Division of Wildlife [CDOW], Colorado Oil and Gas Conservation Commission [COGCC], Colorado Geological Survey [CGS], and Colorado Division of Parks), Garfield County, Rio

Blanco County, City of Rifle, Town of Parachute, and City of Glenwood Springs. BLM also consulted with Mesa County.

The Consultation and Coordination process, following publication of the Draft RMPA/EIS, included compilation, review, and consideration of 74,907 comment submissions by individuals, citizen groups, industry groups, and other stakeholders, including the Cooperating Agencies. Of the total submissions, more than 97 percent were multiples of identical letters, most of which opposed oil and gas leasing atop the plateau. Most of the other 3 percent expressed general opinions or positions that may be grouped into the following four categories: (1) those against leasing and development of oil and gas on top of the plateau, primarily citing the need to protect natural resources and existing recreational opportunities; (2) those in favor of leasing, typically citing the energy and security needs of the nation; (3) those supporting a variety of management concepts in addition to no leasing atop the plateau, often using the term "community alternative" developed by some of the citizen groups; and (4) those expressing philosophical views on resource protection and/or resource development. A few submissions contained specific technical comments regarding data, methodologies, and conclusions.

Following compilation of the comments, BLM conducted a series of six work sessions with the Cooperating Agencies across a period of 6 months. During that process, it became clear that most of these agencies shared the concern expressed in the majority of public comments regarding impacts to sensitive resources and the socially and economically important recreational opportunities on top of the plateau. Other specific concerns generally focused on three components of the lower portion of the Planning Area (below and along the Roan Cliffs): the need to protect deer and elk winter range, the need to protect high-sensitivity viewsheds as seen from local communities and major travel corridors, and the need to maintain existing opportunities for off-highway vehicle (OHV) travel. Other concerns expressed and discussed during the Cooperating Agency meetings included (among others) impacts of oil and gas development on local economies, both directly and indirectly through increased traffic and infrastructure costs to the counties and communities; impacts on the regional culture, including hunting and livestock grazing; and impacts to air quality and local water supplies.

During the Consultation and Coordination process, the CDNR proposed an innovative approach to oil and gas development atop the plateau. The CDNR approach is intended to accommodate development of the underlying gas resource while providing substantial levels of natural resource protection. This approach, which received favorable support from other participants in the process, would minimize impacts to sensitive resources by requiring phased and clustered development within a Federal Unit on the upper plateau. Mitigation under the CDNR approach would also result from limiting the amount of land in a disturbed condition at any one time to approximately 1 percent of the total area of the upper plateau (350 acres).

In developing the Proposed Plan, BLM combined the basic components of the CDNR approach with other revisions to the Preferred Alternative (Alternative III) of the Draft RMPA/EIS. These other revisions consisted primarily of additional measures to increase the level of protection of ecological and other sensitive resources while allowing levels of oil and gas development comparable to the most intensive development scenario in the Draft. A key component of the Preferred Alternative of the Draft—deferral of leasing and drilling atop the plateau until 80 percent of the BLM lands at the lower elevations have been developed—was not incorporated into the Proposed Plan, both because it did not receive significant support among either the public or the Cooperating Agencies, and because it became moot upon incorporation of the CDNR approach for oil and gas leasing which would require phased and clustered development on the upper plateau.

PROPOSED PLAN COMPONENTS

The overarching goal of the Proposed Plan is to protect key ecological, visual, and recreational values while allowing for the leasing and subsequent development of oil and gas resources under strict and

performance-based standards. Although leasing decisions would allow for future development, additional analysis and permitting would be required prior to on-the-ground activities. The Proposed Plan was crafted by combining components primarily from Alternative II (Environmentally Most Protective Alternative) and Alternative III (Preferred Alternative) with the CDNR approach and other recommendations arising from the Consultation and Coordination process.

Major aspects of the Proposed Plan are summarized below, summarized in Tables S-1 and S-2, and depicted graphically on Maps 1 and 2 in Appendix A.

Leasing of Fluid Minerals

The Proposed Plan would allow oil and gas leasing on 100 percent of the Federal mineral estate lands within the Planning Area. However, various constraints on long-term ground-disturbing activities would cover 51 percent of the Planning Area (38,427 acres) and limit the area available for oil and gas surface facilities to 49 percent (35,175 acres) of the Federal lands in the Planning Area. A difference between the Preferred Alternative of the Draft RMPA/EIS and the Proposed Plan consists of replacing the concept of "vertical phasing" by deferring drilling on top of the plateau until 80 percent of the available lands below the cliffs have been developed with the concept of "horizontal phasing" through the CDNR concept of phased and clustered development from the outset. This approach includes the following basic components for areas on top of the plateau:

- Clustering of Facilities – Require a minimum separation between drill pads of 0.5 miles (2,640 feet), except where a closer distance would be preferable in terms of environmental protection (e.g., to avoid an otherwise unnecessary stream crossing). The resultant maximum surface density would be one pad per 160 acres. This requirement relies on directional drilling to access the 10-acre downhole spacing of Mesaverde wells and the 160-acre downhole spacing of Wasatch wells. Other facilities would be clustered along main roads in order to minimize surface disturbance.
- Development on Ridgetops – Focus development on slopes of less than 20 percent along ridgetops, consisting of drainage divides between the ecologically, hydrologically, visually, and recreationally more sensitive stream valleys.
- Limited Surface Disturbance – Limit the amount of disturbed land at any one time to 350 acres, representing approximately 1 percent of the BLM lands on top of the plateau. In this context, disturbed land would include drill pads, access roads, pipelines, and other areas of surface disturbance either not yet in the process of reclamation or, if in that process, not showing satisfactory progress toward reclamation criteria.
- Phased Development – Restrict drilling operations to only one of six "phased development areas" at a time, and prohibit shifting operations to the next development area if the amount of surface disturbance atop the plateau exceeds the 350-acre limit. Areas showing satisfactory progress toward successful reclamation would be subtracted from the running total of surface disturbance. The goal of this approach is to create an incentive for prompt and suitable reclamation.

These components would be implemented within a Federal Unit for the top of the plateau. The reason for this is to avoid simultaneous development on multiple and scattered lease parcels to meet the needs of individual lessees. Instead, all lessees (potentially fourteen or more based on a maximum lease size of 2,560 acres) would share in development costs and oil and gas revenues from the entire Federal Unit regardless of whether their parcels are undergoing development. The mechanism for distribution of costs and revenues would be determined prior to lease issuance.

A computer analysis based on the well-pad criteria under the phased and clustered development approach was conducted. Areas unavailable for drilling activities due to No Ground Disturbance/No Surface Occupancy (NGD/NSO) restrictions, and an assumed 2,500-foot horizontal reach using directional

drilling yielded an estimate that more than 90 percent of the Federal mineral estate atop the plateau could be accessed for recovery of the oil and gas resource.

For areas below the cliffs, BLM would require clustering of wells and facilities to achieve a management goal for surface densities of one pad per 160 acres. Clustering of wells and consolidation of facilities would also serve to minimize surface disturbance. Greater flexibility in placement and density of pads and facilities below the cliffs is warranted by the juxtaposition of private and Federal lands, existing Federal leases, irregular and restrictive topography, and extensive areas of NGD/NSO restrictions in this portion of the Planning Area.

Development of Oil Shale

Research-scale lease tracts for oil shale would be considered within the Planning Area and would be subject to the same restrictions and limitations on surface use as traditional oil and gas drilling operations. Approval of research tracts would be based on the merits of the technologies proposed. [Note: a number of oil shale research tracts have recently been sought and approved on BLM lands in the Piceance Basin north and northwest of the Planning Area, but none was sought within the Planning Area.] Oil shale leasing decisions which would allow for future development are also being considered in the Programmatic Environmental Impact Statement for Oil Shale and Tar Sands Leasing. Unless modified in future land use planning decisions, activities associated with oil shale development would comply with the stipulations and conditions outlined in this Proposed Plan/Final EIS.

Special Management Designations

Areas of Critical Environmental Concern – Another component of the Proposed Plan resulting from the Consultation and Coordination process is the designation of four Areas of Critical Environmental Concern (ACECs), including East Fork Parachute Creek and Trapper/Northwater Creek atop the plateau and Magpie Gulch and Anvil Points along and below the cliffs. The Preferred Alternative of the Draft RMPA/EIS designated only the two ACECs on top, while Alternative II incorporated the same ACECs as the Proposed Plan but with somewhat greater area.

Watershed Management Area – Proposed Plan would retain this component identifying almost the entire top of the plateau as the Parachute Creek Watershed Management Area (WMA). This WMA would be larger than the WMAs to be designated under Alternatives III and IV of the Draft RMPA/EIS. The WMA would be protected with Site-Specific Relocation/Controlled Surface Use (SSR/CSU) restrictions. These restrictions enable BLM to require that a proposed surface disturbance associated with a permitted land use or management action be relocated by more than 200 meters if necessary to protect watershed processes that support fisheries, botanical resources, and municipal water supplies.

Wild and Scenic Rivers – Protection of stream segments found eligible for designation as Wild and Scenic Rivers (WSRs) would be protected by an SSR/CSU restriction stipulation until a determination regarding suitability is made.

Wilderness Study Areas – No Wilderness Study Areas (WSAs) would be designated under the Proposed Plan, nor would any areas be managed specifically to protect and preserve wilderness values. However, NGD/NSO protections for the ecologically and visually more sensitive areas above and along the cliffs would tend to maintain some wilderness characteristics.

Resource Management

Anvil Points Cave – The scientific and historic values of the Anvil Points Cave would be protected and preserved by prohibiting long-term ground-disturbing activities, under all alternatives. By application of an NGD/NSO, no physical disturbance to the cave or karst system surrounding the cave would be allowed. Activities that could cause direct or indirect impacts (such as collapse or dewatering) to the cave system would be restricted.

Paleontological Resources – Paleontological resources would be managed as in Alternatives I through V. Specifically, paleontological clearances and mitigation would be required prior to ground-disturbing activities in areas with outcrops of formations that are known to contain, or have a high potential to contain, vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Significant resources would be avoided or recovered through the authorization process. Paleontological resources in the Sharrard Park area would be protected from ground-disturbing activities through an SSR/CSU restriction.

Soils – Under all alternatives, soils would be managed on a watershed level to meet Land Health Standards, with an NGD/NSO restriction for slopes steeper than 50 percent and an SSR/CSU restriction for areas with highly erodible (erosive) soils on slopes steeper than 30 percent.

Surface Water and Groundwater – Surface water and groundwater resources would be managed to meet all State and Federal water quality standards under all alternatives. Based on NGD/NSO and SSR/CSU restrictions and best management practices (BMPs) to protect water quality, aquatic life, riparian/wetland habitats, and the Parachute Creek watershed, the Proposed Plan is not anticipated to result in exceedances of water quality standards for the designated uses. The potential for impacts from accidental spills or releases of pollutants associated with oil and gas operations exists, but BLM requirements are designed to minimize this potential and ensure an appropriate response. If exceedances of standards or spills or releases occur, remedial measures and stringent protections and mitigation would be required. BLM's requirements for groundwater protection during oil and gas development, combined with the very limited existing or potential use of groundwater aquifers, are expected to result in no exceedances of water quality standards for groundwater.

Air Quality – Air quality would be managed the same as under Alternatives I through V. Monitoring would be conducted and mitigation measures applied as required to meet applicable Federal and State air quality regulations and standards and any local standards. Potential mitigation measures could include methods to reduce fugitive dust from road construction and vehicular travel, emissions of pollutants from diesel engines, and gaseous emissions from wells and compressors.

Vegetation – Upland vegetation would be managed to achieve a diverse native species composition and productivity, characterized by specific objectives for the ten most extensive plant communities in the Planning Area. Vegetation would be maintained at, or restored to, at least a 70 percent Ecological Condition Rating (ECR). Ecological Site Inventories (ESIs), based on Natural Resources Conservation Service (NRCS) procedures and standards, or an equivalent monitoring system would be established to support assessments against these objectives and condition rating. BLM decisions regarding the permitting and siting of ground-disturbing activities would consider these vegetation standards and objectives.

Riparian/wetland communities would be managed to achieve Proper Functioning Condition (PFC) and late-seral stage community development, with a diverse structural and native species composition. Riparian/wetland vegetation would be protected with an NGD/NSO, while buffers of up to 500 feet would have an SSR/CSU. Within 500 feet of riparian/wetland vegetation, BLM may require a special design or mitigation of projects, as well as requiring that a project be relocated by more than 200 meters to minimize impact to the resource.

The Proposed Plan would also emphasize implementation of an integrated weed management program (including mechanical, biological, and chemical methods) to deter and control noxious weeds. This would include promoting healthy native plant communities as well as prevention, inventory, detection, monitoring, and specific project and control actions.

Protections for special status plant species would include an NGD/NSO for occupied habitat of the two candidate species known to occur in the Planning Area, the DeBeque phacelia and Parachute penstemon. This is in contrast to the Preferred Alternative of the Draft RMPA/EIS, which would provide NGD/NSO

protections for occupied habitat of all special status plants and significant plant communities. The Proposed Plan would provide SSR/CSU restrictions for most of the remaining special status plants and significant plant communities, including hanging garden species in the East Fork Parachute Creek and Trapper/Northwater Creek watersheds above the rim and large areas in the Anvil Points area or associated with old-growth Douglas-fir. The Proposed Plan would not include NGD/NSO or SSR/CSU protections for four populations representing two special status plants that are more common and widespread.

Fish and Wildlife – Another component incorporated into the Proposed Plan in response to the Consultation and Coordination process consists of NGD/NSO restrictions for areas mapped by the CDOW as big game security areas along and below the cliffs. Protection of these areas of rugged, wooded terrain was included under Alternative II but not the Preferred Alternative of the Draft RMPA/EIS. Big game movement corridors (i.e., passages through the Roan Cliffs) would also be protected with NGD/NSO restrictions. Additionally, the Proposed Plan would provide SSR/CSU protections to big game security areas mapped by CDOW along some of the steep, wooded stream valleys atop the plateau.

Under the Proposed Plan, a seasonal restriction (Timing Limitation, or TL) on ground-disturbing activities (including oil and gas drilling and road construction) would be applied in all areas mapped by CDOW as big game winter range (primarily for mule deer and secondarily for Rocky Mountain elk). Mapping of the TL has been updated to include all areas mapped as winter range. The winter range TL would cover the 5-month period of December through April of each year, consistent with Alternatives I through III of the Draft RMPA/EIS.

In addition to the benefits of phased and clustered development atop the plateau and the NGD/NSO restrictions for a variety of other resources, special status wildlife and their habitats would also benefit from specific protections for these species. Special status species include listed, proposed, or candidate Federal threatened or endangered species, BLM sensitive species, and State-listed threatened, endangered, or special concern species in Colorado. These would include an NGD/NSO for occupied and other high-value habitat for the genetically pure populations of the Colorado River cutthroat trout and an SSR/CSU for the entire Parachute Creek WMA, including areas identified as having a high value for watershed processes (i.e., upslope or upstream from areas of high-value trout habitat).

Restrictions on long-term ground-disturbing activities for other habitats and areas of wildlife use specific to special status species would include NGD/NSO restrictions for the Colorado River corridor, the Anvil Points Cave bat habitat, bald eagle nesting and winter roosting areas, other raptor and waterbird nesting and brood-rearing areas, and occupied or other habitats needed to sustain threatened or endangered species. Additional protections would include TLs for the bald eagle, other raptor nesting, and waterbird nesting areas, and an SSR/CSU (in addition to an NGD/NSO and a TL) for the peregrine falcon cliff-nesting complex. An SSR/CSU would also apply to habitats for any BLM sensitive species.

Visual Quality – Atop the plateau, visual resources would be managed as Visual Resource Management (VRM) Class I in the visually sensitive East Fork waterfall and box canyon (protected with an NGD/NSO) and as VRM Class III for the remainder of area (protected with an SSR/CSU). Below the rim, most of the lands would be managed as VRM Class II, except that the areas near the existing utilities corridor along State Highway (SH) 13 would be managed as VRM Class IV. The VRM Class II areas below the rim would have an SSR/CSU, but with an NGD/NSO for the highly sensitive I-70 viewshed.

Cultural Resources – As under Alternatives I through V, cultural resource management would involve a moderate level of proactive fieldwork and would comply with the National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), National Programmatic Agreement/State Protocol, WO-IB-2002-101, and other applicable laws, regulations, and policies. Specific goals include:

- Preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations. This would include compliance with FLPMA Sections 103(c), 201(a), and 202(c); NHPA Section 110(a); and ARPA Section 14(a).
- Reduce imminent threats from natural or human-caused deterioration or potential conflict with other uses by identifying priority geographic areas for field inventories. This would be based on the probability of occurrence of unrecorded significant resources, as required by NHPA Sections 106 and 110 and ARPA Section 14(a).

Recreation and Travel – The Proposed Plan would differ from Alternatives I through V by not managing specifically for recreation, except in an area of Hubbard Mesa to be managed as an OHV Riding Area. Instead, recreational opportunities and outcomes would be shaped by oil and gas drilling, road construction, and other land uses and management actions. However, phased and clustered development on the top of the plateau, and the extensive areas of NGD/NSO protections for sensitive ecological and visual resources, would tend to preserve existing recreational uses in most of the area. The emphasis on recreation in the Hubbard Mesa OHV Riding Area, although not designated as a Special Recreation Management Area (SRMA) under the Proposed Plan, includes an SSR/CSU to minimize conflicts associated with oil and gas operations and recreation. While the Hubbard Mesa OHV Riding Area would be designated "open" for motorized and mechanized travel (i.e., cross-country travel permitted), the remainder of the Planning Area would limit this use to designated routes, except for over-snow travel by snowmobile with a minimum of 12 inches of snow cover.

A total of 163 miles of the existing 259 miles of routes within the Planning Area would be designated for mechanized or motorized use. The remaining routes would include 28 miles to be closed and reclaimed and 68 miles to be limited to administrative use. All new oil and gas access roads would be designated for administrative use except in the Hubbard Mesa area. Upon abandonment, all oil and gas roads would be reclaimed unless BLM deems it more appropriate to retain them for administrative or public use.

Lands and Realty – Approximately 120 acres of isolated parcels would be eligible for disposal, and BLM would allow continued use of the utility rights-of-way (ROWs) along I-70 and SH 13 as well as within 50 feet of designated and administrative travel routes, except where such placement would negatively impact other important resource values. In these instances, BLM would require that utilities be placed within the existing road ROW if practicable, or realigned to avoid important resource values. On a case-by-case basis, BLM may require that proposed utility projects be shifted more than 200 meters to avoid sensitive resources.

Grazing and Rangeland Management – As an outgrowth of the Consultation and Coordination process, and in cooperation with grazing permittees, allotment management plans (AMPs) would be developed, implemented, monitored, and evaluated on a regular basis, with priority for allotments not meeting Land Health Standards. A combination of administrative solutions (e.g., mandatory terms and conditions of the permit, season of use revisions, pasture rotation, deferred or rest rotation, livestock exclusion, and stocking level adjustments), rangeland projects (fences, ponds, etc. to direct livestock use), and guidelines and BMPs for resting and deferring grazing of riparian areas would be applied to meet resource objectives and Land Health Standards. Determinations of drought would be used when appropriate to adjust livestock management within allotments to provide long-term protection of ecological and forage values.

Reclamation – Also as an outgrowth of the Consultation and Coordination process, the Proposed Plan would implement a variety of BMPs and mitigation measures to avoid, minimize, or offset adverse impacts of ground-disturbing activities, including standardized reclamation practices. Annual monitoring and reporting of vegetation conditions in reclaimed areas would be used to evaluate progress toward attainment of performance-based criteria, identifying the need for corrective measures, and determining when success has been achieved. The annual monitoring would guide adaptive management decisions for existing and future ground-disturbing activities and help ensure restoration to productive, self-sustaining, and native conditions appropriate for the site.

Fire Management – For the Proposed Plan and all alternatives except No Action, the top of the plateau would be changed from Fire Management Zone (FMZ) "D" to "C." This change recognizes that the desirability of wildland fire as a management tool is offset by various ecological, social, or political constraints. These include an increased presence of oil and gas facilities, the presence of sensitive ecological resources that could be damaged by wildland fires, and the proximity to private property. The existing FMZ "B" and "C" designations below the cliffs would continue to apply.

ANTICIPATED IMPACTS

Table S-3 summarizes anticipated levels of environmental impacts associated with implementation of the Proposed Plan in comparison to Alternatives I through V. The qualitative impact levels in the table incorporate the surface-use restrictions and management prescriptions under each alternative, in addition to BMPs and mitigation measures. The qualitative terms used—major, moderate, minor, and negligible—are intended for comparative purposes only. General definitions of these terms are as follows:

- None – Unlikely to impair the resource.
- Negligible – May impair the resource, but not at levels that would be noticed by the public, cause the resource value to drop to a lower category, or violate a regulatory standard or environmental law. A more severe impact may be negligible if it is temporary (duration <2 years).
- Minor – Likely to impair the resource at levels that would be noticed by the public, but not to a degree that would detract significantly from the overall value of that resource or a specific use. Unlikely to cause the resource value to drop to a lower category or violate a regulatory standard or environmental law. Relatively few impacts are likely to be permanent (duration >50 years).
- Moderate – Likely to impair the resource at levels that would be noticed by the public and detract significantly from the overall value of that resource or a specific use. Could cause the resource value to drop to a lower category but unlikely to violate a regulatory standard or environmental law. Some impacts are likely to be permanent (duration >50 years).
- Major – Definitely would impair the resource at levels that would be noticed by the public and would eliminate most or all of the value of that resource or a specific use. Expected to cause the resource value to drop to a lower category and could violate a regulatory standard or environmental law unless mitigated. Many impacts are likely to be permanent (duration >50 years).

Technical definitions of the terms used to describe qualitative impact levels for specific resources are provided in Chapter 4.

Table S-1. Limitations and Resource/Management Designations Used in Impact Analysis

Limitation/Designation		*Alt. I No Action*	*Alt. II*	*Alt. III Preferred*	*Alt. IV*	*Alt. V*	*Proposed Plan*
Areas with Surface Stipulations or Other Restrictions, Limitations, or Special Requirements [1]							
No Lease for Oil and Gas[1]		44,267 acres (ac)	21,382 ac	0	0	0	0
Deferred Lease for Oil and Gas [2]		0	0	34,758 ac	0	0	0
NGD/NSO Restrictions		13,912 ac	31,200 ac	30,928 ac	30,928 ac	21,609 ac	38,411 ac
SSR/CSU Restrictions		8,256 ac	7,015 ac	29,594 ac	27,486 ac	21,517 ac	30,833 ac
Timing Limitation (TL) for Winter Range [3]		34,668 ac 5 months	34,668 ac 5 months	34,668 ac 5 months	34,668 ac 2 months	0 ac	34,668 ac 5 months
TL for Raptor and Waterbird Nesting [4]		5,279 ac	5,279 ac	5,279 ac	5,279 ac	5,279 ac	5,279 ac
Standard Stipulations and Restrictions		7,167 ac	14,006 ac	13,080 ac	15,188 ac	30,746 ac	4,358 ac
Areas with Protective Designations or Management Actions [1]							
Areas of Critical Environmental Concern		0	36,184 ac	11,529 ac	11,529 ac	0	21,034 ac
Areas Managed for Roadlessness and Naturalness [5]		0	21,382 ac	9,006 ac	0	0	0
Streams Managed for Wild and Scenic River Eligibility		0	7,883 ac	7,883 ac	7,883 ac	0	7,883 ac
Watershed Management Areas		0	0	29,073 ac	14,219 ac	0	33,575 ac
Motorized or Mechanized Travel [6]	Open	66,934 ac	0	0	2,460 ac	0	2,460 ac
	Limited to Designated Routes [7]	0	45,552 ac	66,934 ac	64,474 ac	66,934 ac	64,474 ac
	Closed	0	21,382 ac	0	0	0	0
Visual Resource Management [8]	VRM Class I	0	37,205 ac	925 ac	925 ac	0	1,612 ac
	VRM Class II	24,039 ac	13,428 ac	48,752 ac	48,752 ac	0	30,168 ac
	VRM Class III	37,115 ac	14,607 ac	15,563 ac	15,563 ac	63,022 ac	33,536 ac
	VRM Class IV	10,340 ac	8,350 ac	8,350 ac	8,350 ac	10,568 ac	8,274 ac
	VRM Class V	2,096 ac	0	0	0	0	0
Upland Vegetation Condition Rating		40%	70%	50%	50%	40%	70%
Riparian/Wetland Level of Protection		Maintain	Enhance	Enhance	Enhance	Maintain	Enhance
Colorado River Cutthroat Trout Habitat		Maintain	Enhance	Enhance	Enhance	Maintain	Enhance
Big Game Security Areas		22,885 ac	11,481 ac	--	--	--	22,885 ac

[1] Includes overlap between stipulations and protective designations on which they are based. See text for definitions of NGD, NSO, SSR, CSU, and TL. TLs include overlap with other stipulations, including no-lease area for oil and gas under Alternative I.

[2] For deferred leasing atop the plateau, the threshold criterion of completing 80 percent of anticipated wells below the rim as a trigger for development atop the plateau would be met in 10 to 20+ years (estimated at 16 years for this RMPA/EIS).

[3] Winter range TL applied as lease stipulation under Alternatives I through III and Proposed Plan and as a Condition of Approval (COA) under Alternative IV. Total acres include overlap with other TLs.

[4] Raptor TL includes bald eagle nesting and winter roosting areas, peregrine falcon cliff-nesting areas, and active nests of other species. Total acres include overlap with other TLs.

[5] For Alternative II, managed to protect roadlessness, naturalness, and solitude or primitive and unconfined recreation (i.e., wilderness character). For Alternative III, managed to protect roadlessness and naturalness; associated NGD/NSOs would allow no exceptions.

[6] The difference of 6,668 acres between combined areas and total of 73,602 acres reflects lands with Federal minerals but private surface.

[7] Over-snow travel by snowmobiles limited to designated routes under Alternative II only.

[8] Does not include 12 acres of "Urban" under all alternatives.

Table S-2. Anticipated Oil and Gas Development on BLM Lands During 20-Year Period

Component	*Alternative I No Action*	*Alternative II*	*Alternative III Preferred*	*Alternative IV*	*Alternative V*	*Proposed Plan*
Area Available for Pads, Other Surface Facilities, and Roads [1]	15,423 acres	21,021 acres	42,674 acres	42,674 acres	51,993 acres	35,191 acres
Pads (Wells) atop the Plateau [2,3]	7 (10)	66 (87)	39 (51)	126 (168)	175 (234)	13 (210)
Pads (Wells) below the Cliffs [3]	247 (845)	244 (818)	363 (1,273)	323 (1,156)	409 (1,348)	180 (1,360)
Total Pads (Wells) [3]	257 (852)	310 (905)	402 (1,324)	449 (1,324)	584 (1,582)	193 (1,570)
Long-term Ground Disturbance for Pads and Associated Facilities [4]	638 acres	745 acres	944 acres	988 acres	1,266 acres	482 acres
Area (length) and Miles of New or Upgraded Access Roads [4]	513 acres 152 miles	603 acres 186 miles	817 acres 241 miles	861 acres 270 miles	1,112 acres 350 miles	330 acres 124 miles
Total Long-term Ground Disturbance	1,151 acres	1,348 acres	1,761 acres	1,940 acres	2,495 acres	812 acres
Total Gas Produced by New Wells Drilled in 20 Years on BLM Lands [5]	974 billion cubic feet	1,031 billion cubic feet	1,510 billion cubic feet	1,510 billion cubic feet	1,803 billion cubic feet	1,790 billion cubic feet
Total Oil Recovered from New Gas Wells Drilled in 20 Years on BLM Lands [6]	1,900 barrels	2,100 barrels	3,000 barrels	3,000 barrels	3,600 barrels	3,600 barrels

Assumptions

Alternatives I – V	*Proposed Plan*
[1] *Leasable area minus areas with NSO stipulations.*	[1] *Leasable area minus areas with NSO stipulations.*
[2] *For Alternative III, leasing and drilling atop the plateau would be deferred until 80 percent of the total wells anticipated below the rim under Alternative III have been effectively completed to total depth and a production test performed.*	[2] *Atop the plateau: Leased as Federal unit specifying minimum spacing between pads, use of clustering, staged development, and placement of oil and gas facilities on ridgetops (<20% slopes).*
[3] *Based on 40-acre surface density, except 20-acre surface density for directional drilling below cliffs. Downhole spacing as follows: Mesaverde: above the rim: 40 acres; below the rim: 80 percent at 10 acres, 20 percent at 20 acres; Wasatch: 160 acres.*	[3] *Atop the plateau: Minimum of 0.5 mile between pads (160-acre surface density) and clustering of up to 17 wells per pad (10 Mesaverde with 10-acre downhole spacing, plus 1 Wasatch at 160-acre downhole spacing, and net 160-acre surface density).* *Below the rim: Management goal of 160-acre surface density for unleased portions; assumed average of existing and new leases of 80-acre surface density; 10-acre downhole spacing for Mesaverde and 160-acre downhole spacing for Wasatch.*
[4] *Pad impacts as follows: 1.9 acres for single-well pads, 2.5 acres for multi-well pads. Road impacts as follows: 0.6 mile of new or widened road per pad; above the rim: 80% new roads 30 feet wide and 20 percent existing roads widened by 20 feet; below the rim: 20% new roads 30 feet wide and 80 percent existing roads widened by 20 feet.*	[4] *Pad impacts as follows: 2.5 acre for multi-well pads. Road impacts as follows: 20 percent new roads 30 feet wide and 80 percent existing roads widened by 20 feet.*
[5] *Natural gas produced over operational life of wells drilled on BLM lands in Planning Area during 20-year period of analysis. Based on Reasonable Foreseeable Development (RFD) (Appendix H). Assumes 1.17 billion cubic feet (BCF) per Mesaverde well and 0.7 BCF per Wasatch well; weighted average approximately = 1.14 BCF per well.*	[5] *Natural gas produced over operational life of wells drilled on BLM lands in Planning Area during 20-year period of analysis. Based on RFD (Appendix H). Assumes 1.17 BCF per Mesaverde well and 0.7 BCF per Wasatch well; weighted average approximately = 1.14 BCF per well.*
[6] *Oil recovered at an average rate of 0.002 thousand barrels (MBO) per BCF of gas.*	[6] *Oil recovered at an average rate of 0.002 MBO per BCF of gas.*

Table S-3. Overall Level of Potential Adverse Impacts Compared to Existing Conditions [1, 2, 3]

Resource		*Alt. I No Action*	*Alt. II*	*Alt. III Preferred*	*Alt. IV*	*Alt. V*	*Proposed Plan*
Anvil Points Cave		Minor	Negligible	Minor	Minor	Minor	Minor
Fossils		Minor	Negligible	Negligible	Negligible	Negligible	Negligible
Soils		Minor	Minor	Minor	Minor	Minor	Minor
Groundwater		Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Surface Water	Quality	Minor to Moderate	Minor	Minor	Minor to Moderate	Moderate	Minor
	Quantity	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Air Quality	Hazardous Air Pollutants, Priority Pollutants, Visibility	Minor	Minor	Minor	Minor	Minor	Minor
	Sulfur and Nitrogen Deposition, Acid Neutralizing Capacity	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Vegetation		Minor	Negligible	Minor to Moderate	Moderate	Moderate	Minor
Fish and Wildlife		Minor	Minor	Minor to Moderate	Moderate to Major	Major	Minor to Moderate
Special Status Species		Minor	Minor	Minor to Moderate	Moderate	Major	Minor to Moderate
Visual Quality		Moderate	Minor	Moderate	Moderate	Major	Minor
Cultural Resources		Minor	Minor	Minor	Minor	Moderate	Minor
Recreation and Travel		Minor	Minor	Minor to Moderate	Moderate	Major	Minor to Moderate
Livestock Grazing		Minor	Minor	Minor to Moderate	Moderate	Moderate	Minor

[1] *Limited to impacts on BLM lands during 20-year period of analysis. Overall impact summary compared to current condition; specific impact levels may vary by resource and area. Assumes implementation of specified or legally required mitigation measures. Resource categories are not weighted. Does not consider socioeconomic impacts or management conflicts.*

[2] *Ranges of impacts reflect impact levels for different components of the larger categories or different portions of the Planning Area. For Alternative III, ranges also reflect the estimated 16-year deferral period during which no oil and gas development would occur on top of the plateau.*

[3] *Qualitative impact levels defined for individual resources in Chapter 4.*