OIL AND GAS LEASING ON LANDS ADMINISTERED BY THE DIXIE NATIONAL FOREST

Record of Decision

August 2011

US Department of Agriculture
Forest Service
Dixie National Forest

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Oil and Gas Leasing on the Dixie National Forest

RECORD OF DECISION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

APD	Application for Permit to Drill
AQRV	Air Quality-Related Values
BLM	Bureau of Land Management
CEQ	Council of Environmental Quality
CSU	Controlled Surface Use
DOI	Department of Interior
EIS	Environmental Impact Statement
ENBB	Electronic Notification Bulletin Board
EPA	Environmental Protection Agency
GIS	Geographic Information System
FLAG	Federal Land Managers' Air Group
IRA	Inventoried Roadless Area
NAAQS	National Ambient Air Quality Standards
NOA	Notice of Availability
NOI	Notice of Intent
NPS	National Park Service
NSO	No Surface Occupancy
RACR	Roadless Area Conservation Rule
RNA	Research Natural Area
RFDS	Reasonable Foreseeable Development Scenario
ROD	Record of Decision
SIR	Supplemental Information Report
SLT	Standard Lease Terms
SOPA	Schedule of Proposed Actions
SUPO	Surface Use Plan of Operations
TL	Timing Limitation
UBAQS	Uinta Basin Air Quality Study
UDAQ	Utah Department of Air Quality
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service

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1.0 SUMMARY AND BACKGROUND

The Federal Onshore Oil and Gas Leasing Reform Act (P.L. 100-203) was enacted in 1987. The implementing regulations for the Bureau of Land Management (BLM) were published in 1988 and the US Forest Service (USFS) regulations were published in 1990. The regulations describe the procedures by which each agency will carry out its statutory responsibilities in the issuance of oil and gas leases.

In the case of oil and gas resources under reserved National Forest System land, the BLM is responsible for advertising and selling available leases, and for monitoring subsurface activities related to exploration and development. Their monitoring role includes administering all Federal regulations pertaining to subsurface oil and gas development.

The USFS has the authority and responsibility to determine which National Forest System lands are available for oil and gas leasing, and the specific lands which the BLM may offer for lease; to prescribe lease terms that provide reasonable protection to surface resources; to approve the lessee's Surface Use Plan of Operations (SUPO); and to insure that the requirements of the leases and operating plans are carried out according to their terms. The regulations applicable to the above are found in Title 36, Code of Federal Regulations, Part 228, Subpart E.

The regulations 43 CFR 3101.7-2(c), which pertain to leasing of Federal lands administered by an agency outside the Department of Interior, require the BLM to review and accept all reasonable leasing recommendations of the surface managing agency. In this case, these recommendations involve decisions on the administrative availability and authorization of specific lands for leasing, and stipulations needed to protect surface and subsurface resources within the Forest.

1.1 Environmental Analysis

The Oil & Gas Leasing on Lands Administered by the Dixie National Forest Environmental Impact Statement (EIS) was prepared in response to the requirements of the implementing regulations for the Leasing Reform Act. All legally available National Forest System lands on the Dixie National Forest have been included in the analysis area.

The Final EIS documents the analysis of a No Action alternative and four action alternatives designed to meet the purpose and need for the project. Chapter 7 of the Final EIS provides a summary of the comments received on the Draft EIS and Supplemental Information Report (SIR) for updated Air Resources and Climate Change analyses, as well as the agency’s responses to them.

The total project area for oil and gas leasing on the Dixie National Forest comprises approximately 1,631,240 acres administered across four Ranger Districts (Pine Valley, Cedar City, Powell, and Escalante), which includes all National Forest System lands

with the exception of lands with private surface rights (i.e., private lands). The Teasdale Ranger District (235,707 acres) is administered by the Fishlake National Forest and is not included in this analysis. The impact analyses in the EIS are based on assumptions in the Reasonable Foreseeable Development Scenario (RFDS), described below.

The Reasonably Foreseeable Development Scenario (RFDS) prepared by the BLM is an estimate of future oil and gas activity, based primarily on known geologic potential for oil and gas occurrence and on past exploration and development activity in and near the Dixie National Forest. The RFDS for the Dixie National Forest projects a maximum of 60 exploration wells over 15 years following leasing, or a Forest-wide average of four wells per year. Furthermore, exploratory drilling during this period could result in a discovery of one oil and gas field with 20 production wells. During the same time period, it is expected that a total of 700 linear miles of seismic data (i.e., geophysical surveys) could be collected on the Dixie National Forest; at least half of these would likely be conducted using helicopter portable equipment. The total gross surface disturbance estimate, if all activities were to occur on the Dixie National Forest, over the next 15 years, including well pads, production facilities, pipelines and powerlines, would be approximately 1,672 acres prior to reclamation with a net disturbance area estimated to be 219 acres.

1.2 Record of Decision

The purpose of this Record of Decision (ROD) is to document USFS decisions regarding:
1) which lands will be administratively available for oil and gas leasing in accordance with 36 CFR 228.102(d) and
2) authorization of BLM to offer specific lands for lease where BLM is currently considering leasing.

These decisions include the lease terms and stipulations determined necessary to protect the surface resources based on disclosure of environmental effects in the Oil and Gas Leasing Final EIS. This ROD also documents the decision to amend the Dixie National Forest Land and Resource Management Plan (1986) (Forest Plan) to modify the direction for lands determined to be administratively available for oil and gas leasing (Appendix ROD-A).

This ROD does not authorize surface-disturbing activities. Post-lease proposals to conduct operations will be evaluated on a site-specific basis and decisions will be documented in accordance with applicable laws and regulations. The conditions and stipulations identified in this decision only apply to actions occurring within the lease boundary, and therefore do not necessarily apply to disturbance or activities that extend outside the lease boundary such as roads, pipelines, or seismic activity. Such activities will be evaluated in separate, project-specific environmental analyses.

This ROD documents the decision to amend the Forest Plan to modify the direction for lands determined to be administratively available for oil and gas leasing (Appendix

ROD-A). These prescriptions will become the management direction of the Forest Plan (Forest Plan Appendix C(b)) as it pertains to oil and gas leasing. In addition, the Dixie National Forest Oil and Gas Construction and Operating Standards and Well Site Design Requirements will be incorporated as a Dixie National Forest supplement to Forest Service Handbook 2809.15 Geology and Minerals.

2.0 DECISION

After carefully considering the administrative record of information, the applicable laws and regulations, the specialist reports, the anticipated environmental impacts of the alternatives analyzed in the Final EIS, comments received on the Draft EIS and SIR, and discussions of the project's anticipated effects with the Interdisciplinary Team and Forest Staff, I have selected **Alternative C** as presented in the Final EIS, with the following modification: On June 23, 2011 Secretary of Interior, Ken Salazar designated Mountain Meadows Massacre Site as a National Historic Landmark within Washington County, Utah. This designation affects approximately 760 acres of the existing approximately 3,000-acre National Register of Historic Places historic district listed in 1975. Approximately 30 acres in two separate parcels are land administered by the Dixie National Forest. It is my decision to select a No Surface Occupancy (NSO) stipulation for those areas of the Forest now National Historic Landmark lands. The remaining portions of the National Register of Historic places would be protected by CSU-28. NSO-28a would not allow any surface occupancy or use for oil and gas activities within Forest System lands designated as the Mountain Meadows Massacre Site National Historic Landmark.

My conclusions are based on the scientific analysis (and supporting project record) that demonstrates a thorough review of relevant scientific information, a consideration of responsible opposing views, and the acknowledgement of incomplete or unavailable information. The analysis identifies techniques and methodologies used, considers the best available science, and references scientific resources relied upon. The analysis includes a summary of the credible scientific evidence relevant to evaluating reasonably foreseeable impacts.

My decision will make 1,478,227 acres of Dixie National Forest lands administratively available for oil and gas leasing, subject to stipulations in Alternative C, in accordance with 36 CFR 228.102(d). No oil and gas leasing will be authorized for approximately 4% (62,614 acres) of Dixie National Forest lands that are either within Research Natural Areas (RNAs) or associated with sensitive aquifers underlying lava fields in the Cedar City Ranger District, and approximately 6% of Forest lands are not administratively available for leasing and are not included in this decision. Although 1,478,227 acres of the Dixie National Forest would be made available for leasing, approximately 76% of the forest would be leasable only under a No Surface Occupancy (NSO) stipulation while about 14% would be protected by various Controlled Surface Use (CSU) stipulations. Timing Limitations (TL) have been placed on 48,696 acres (Table ROD-1). Various NSO, CSU, and TL requirements serve to mitigate potential effects of oil and gas activities. These stipulations represent Forest Service decisions regarding the best

means of avoiding or minimizing environmental impacts that may arise from the project while meeting the integrated resource management requirements of the Forest Plan. In addition, several Lease Notices have been developed to transmit important information regarding special resource concerns on the lease to potential operators to assist them in submitting acceptable plans of operations.

Wilderness Areas (85,503 acres), Brian Head Ski Area (1,673 acres), Antone Bench (3,224 acres), and Split Estate Lands (808 acres) are not administratively available for leasing and are not included in this decision.

Oil and gas leases offered after my decision will include at a minimum Standard Lease Terms (SLT) of the BLM Lease Form 3100-11 plus any stipulations identified below as necessary for resource protection, each listed in the Forest Plan Amendment (Appendix ROD-A). Table ROD-1 displays the acreages available for leasing subject to TL, CSU, or NSO (note that where resource components overlap, the most restrictive leasing option applies). Table ROD-2 summarizes the stipulations and Lease Notices that will apply to each resource.

Table ROD-1

Area by Leasing Option for Each Ranger District

Ranger District	Acres[1,2] By Leasing Option		Additional TL Overlay[3]
	NSO	CSU	
Pine Valley	347,905	60,198	16,866
Cedar City	227,355	58,774	13,186
Powell	340,776	42,592	14,831
Escalante	330,677	69,949	3,814
Total	1,246,714	231,513	48,696

[1] Small discrepancies in the acreage presented for each alternative are due to the fact that the GIS database has limitations when applied over an extremely large area that result in an inability to calculate acreages that match exactly between alternatives.
[2] Totals are approximate due to rounding.
[3] Areas of CSU and SLT that have additional Timing Limitations.

Table ROD-2

Leasing Options by Resource Component

Resource Component	Leasing Stipulation
Visual Resources	
Retention/SIO Very High (Overlaps with Wilderness)	NSO-01
Retention/SIO High	NSO-02
Partial Retention/SIO Moderate	CSU-02
Modification/SIO Low	SLT
SIO Unassigned	CSU-03
NPS Protection	NSO-29
Roadless/Wild and Scenic Rivers	
Inventoried Roadless Areas	NSO-03
Suitable Wild and Scenic Rivers	CSU-05
Recreation	
Designated Dispersed Areas	CSU-06
Developed Sites (with appropriate buffer): Recreation Sites, Camp Grounds, Guard Stations, etc.	NSO-05
Recreation Residences (with 0.25-mile buffer)	NSO-06
Administrative Sites	NSO-05
ROS: Primitive	NSO-07
ROS: Semi-Primitive Non-Motorized	NSO-08
ROS: Semi-Primitive Motorized	CSU-08
ROS: Roaded Natural	CSU-08
Fish and Wildlife	
Sage Grouse Leks	NSO-09 2.0-mile buffer[3]
Sage Grouse Summer, Nesting, and Brood Rearing Habitat	CSU-09
Crucial and Substantial Deer and Elk Winter Range	CSU-10
Crucial Deer and Elk Summer Range	TL-03 May 15–Jul 5
Active Raptor Nests[2]	CSU-11
Goshawk Nest Areas	NSO-11 0.5-mile buffer
Goshawk Post Fledging Areas (PFA)	CSU13
Mexican Spotted Owl Protected Activity Centers (PAC)	NSO-12 LN
Designated Critical Mexican Spotted Owl Habitat	LN
Potential Mexican Spotted Owl Habitat (40% slope and mixed conifers)	CSU-15
Utah Prairie Dog Colonies (with 0.5-mile buffer from colony edge)	NSO-13 LN
Migratory Birds	CSU-16 LN
Bald Eagle Winter Concentration Areas	NSO-14
Bald Eagle Nests	LN

Resource Component	Leasing Stipulation
(with 0.5-mile buffer)[1]	
Peregrine Falcon Nests (with 1-mile buffer)	NSO-15
Peregrine Falcon Rim Habitat	CSU-19
California Condor (Experimental/Nonessential) Rim Habitat	CSU-19
California Condor (Endangered) Rim Habitat and Nest/Roost Area	LN
Threatened, Endangered, and Candidate Species and Suitable Habitat[2]	LN
Forest Service Sensitive Species and Suitable Habitat[2]; Including Pygmy Rabbit, Flammulated Owl, Three-toed Woodpecker, Sensitive Bats, Boreal Toad, Bighorn Sheep	CSU-20
Fisheries Habitat (Occupied and Suitable)	NSO-17 500-foot buffer
Water and Watershed Resources	
Streams, Lakes, Springs, Wetlands, Floodplains, and Riparian Areas (including riparian vegetation)	NSO-20 300 ft buffer LN
Municipal Watersheds	NSO-21
Groundwater Protection Zones 2-4	LN
Existing Transient Non-Community Water Systems – T2 and T4	LN
Surface Water Protection Zones	LN
Sole Source Aquifers	LN
Soils and Geologic Hazards	
Active Rockfall, Landslide Areas (Rockfall/unstable)	NSO-22
Slopes > 35 percent	NSO-23
Areas of High Erosion Potential	NSO-23
Marginally Unstable Slopes	CSU-25
Cave Resources[1]	CSU-26 LN
Vegetation	
Botanical and Geological Areas	NSO-25
Side Hollow Ponderosa Pine Provenance Study	NSO-26
Sensitive Plant Species and Suitable Plant Habitat[2]	CSU-27 LN
Cultural	
Mountain Meadows Massacre Site National Historic Landmark	NSO-28a
Mountain Meadows Historic District	CSU-28 LN
Long Hollow Historic District	CSU-28 LN
Boulder Area/Cedar Mtn and concentrated sites	LN
Air	
Class I airsheds (60 km buffer)	CSU-29
All areas	LN

[1] GIS data not available.
[2] GIS data partially available.
[3] Sage-grouse 2-mile lek buffer includes all areas within a1-mile radius and only sagebrush habitat from 1- to 2-mile radius.

The locations of these stipulations across the Forest are shown on **Figures ROD-1a** through **ROD-1d**. Note that the figures show the most restrictive leasing options that will be applied, by Ranger District.

My decision also includes the following Lease Notices developed as part of this analysis. At a minimum the following Lease Notices will be applied.

- National Forest System Lands under jurisdiction of Department of Agriculture
- Migratory birds
- Bald and golden eagle nests
- Threatened or endangered species
- Utah prairie dog
- Mexican spotted owl
- California condor
- Cultural resources
- Air resources
- Floodplains and wetlands
- Sensitive plant species
- Groundwater protection zones 2-4
- Existing transient non-community water systems – zones T2 - T4
- Surface water protection zones 2-4
- Sole source aquifers
- Cave resources

This ROD complies with 40 CFR 1505.2 and Forest Service Handbook 1909.15, Chapter 25. The Draft EIS and the Final EIS for Oil and Gas Leasing on the Dixie National Forest have been prepared pursuant to the requirements of NEPA (40 CFR 1500-1508), the National Forest Management Act, and the Forest Plan.

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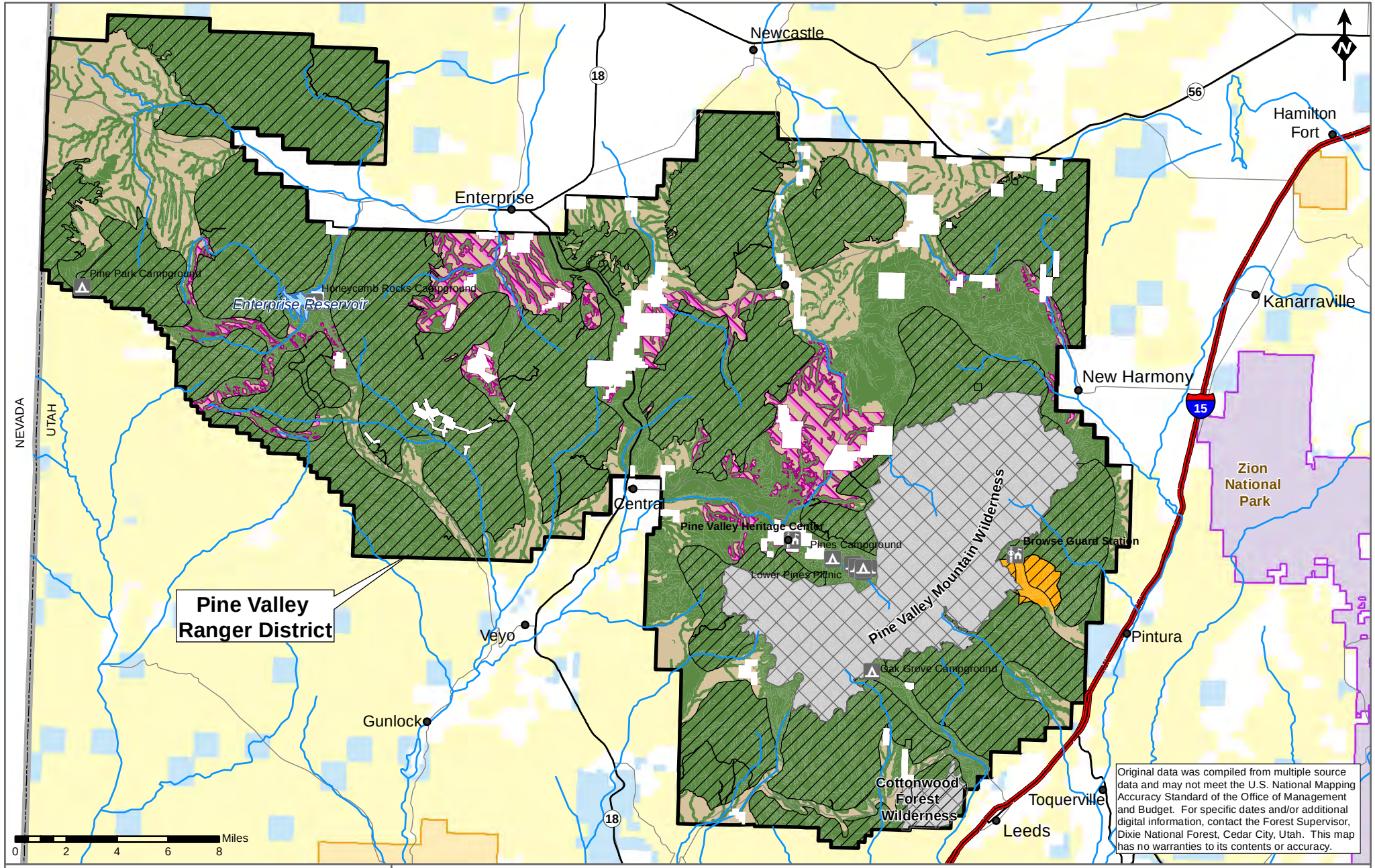


Oil & Gas Leasing EIS on Lands Administered by the Dixie National Forest

FIGURE ROD-1a

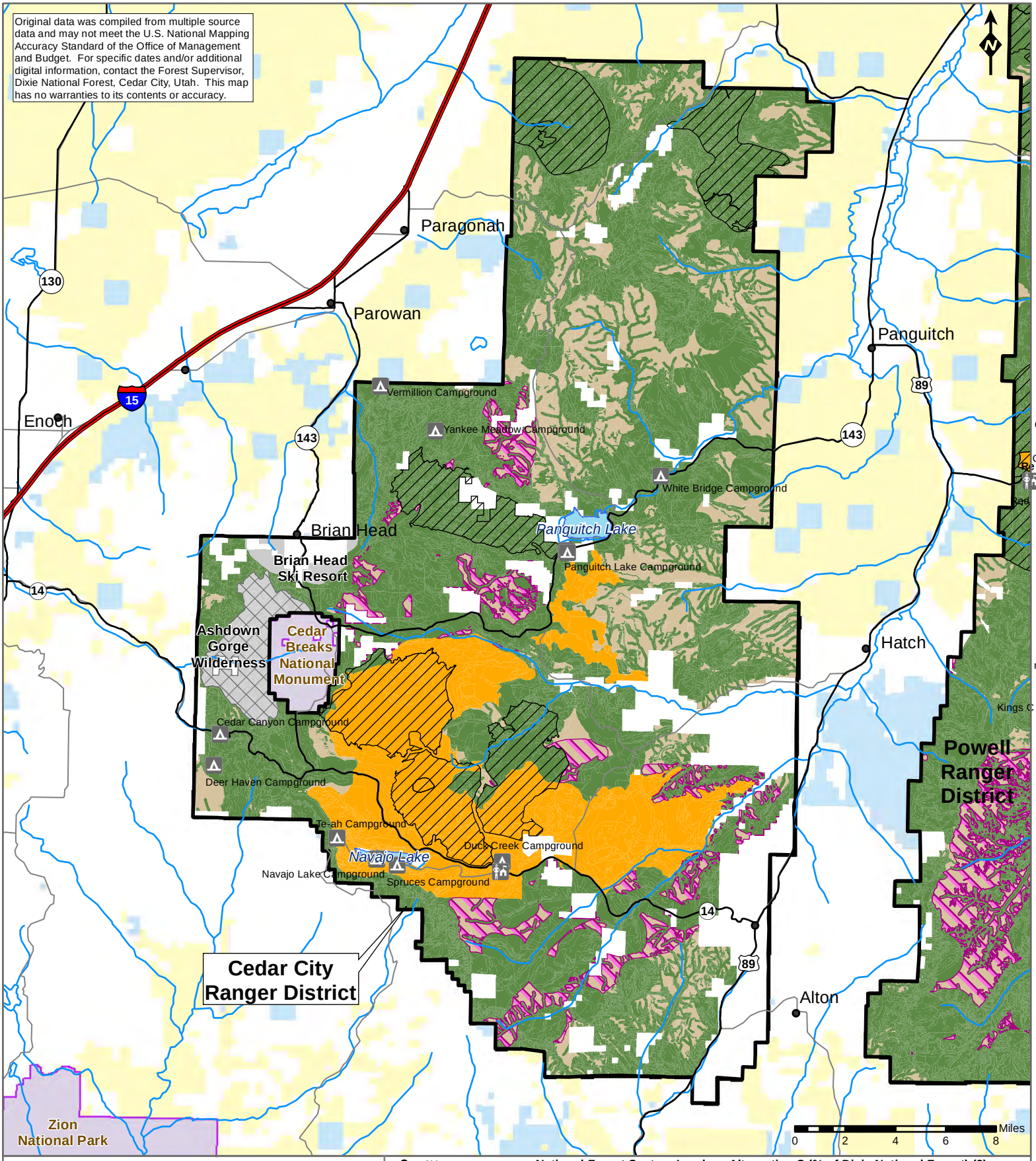
Pine Valley Ranger District

Alternative C

Horizontal Datum = NAD 83 Coordinate System = Zone 12N	1:320,000	1 in = 5 miles

- Cities
- **Forest Sites**
  - Campgrounds
  - Visitor Centers
- Minor Roads (1)
- Highways
- Interstates
- Major Streams & Rivers
- Water Bodies
- State Boundaries
- **National Forest System Lands**
  - Dixie National Forest
  - Wilderness Areas
  - Inventoried Roadless Areas
- **Other Land Administration**
  - Bureau of Land Management
  - National Park Service
  - Private
  - State of Utah
  - Tribal
- **Alternative C (% of Dixie National Forest) (2)**
  - Not Available (5.5%)
  - No Lease (3.8%)
  - No Surface Occupancy (76.4%)
  - Controlled Surface Use (14.2%)
  - Timing Limitation (3)

NOTES
(1) Not all roads are shown. Only some roads are depicted for orientation purposes.
(2) Percentage of Dixie National Forest with federal surface ownership (does not include private lands). Percentages are rounded.
(3) Timing Limitation imposes additional leasing requirements on some Controlled Surface Use and Standard Lease Term areas.



Oil & Gas Leasing EIS on Lands Administered by the Dixie National Forest

FIGURE ROD-1b

Cedar City Ranger District

Alternative C

Horizontal Datum = NAD 83 Coordinate System = Zone 12N	1:320,000	1 in = 5 miles

Cities

Forest Sites
- Campgrounds
- Visitor Centers

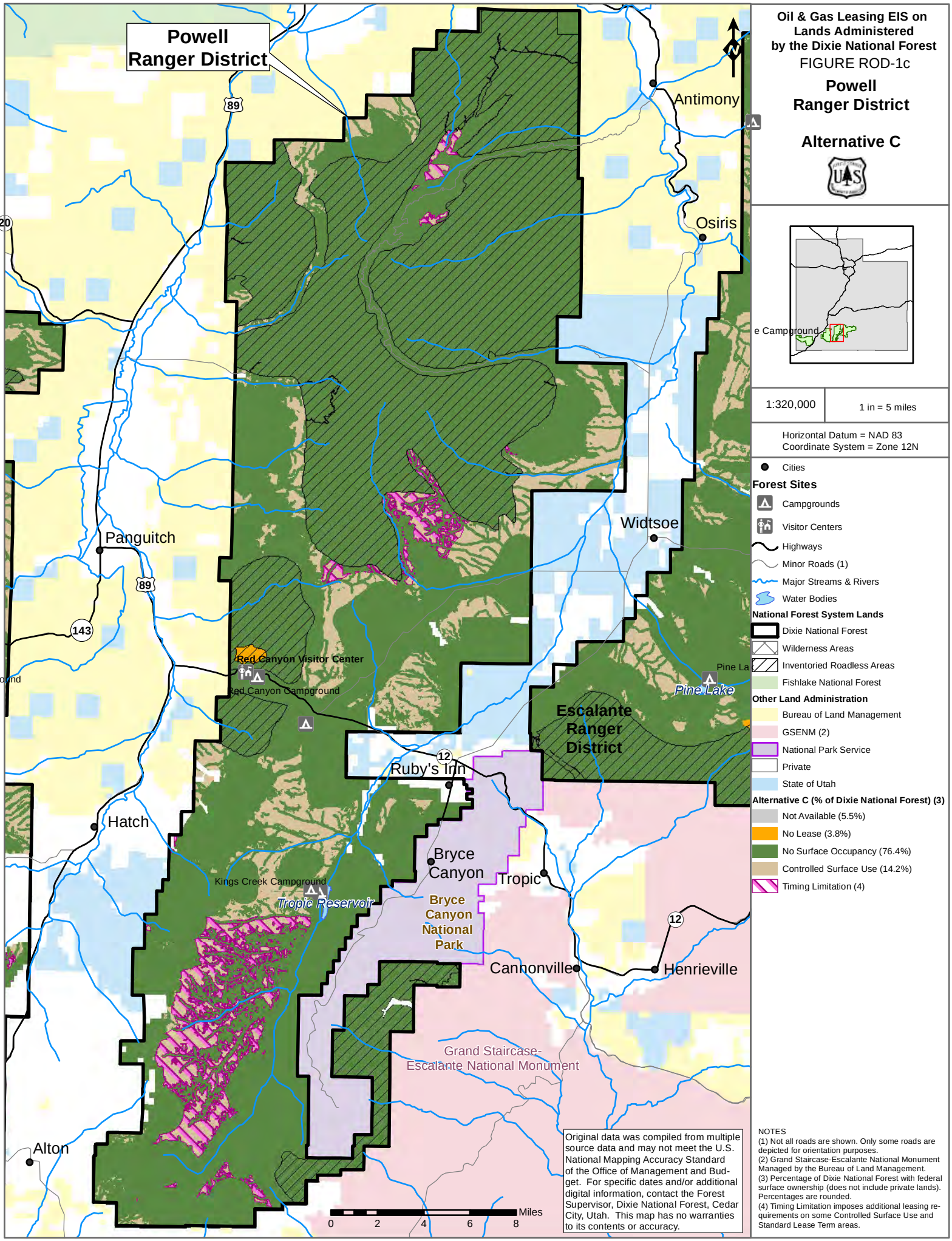
Minor Roads (1)
Highways
Freeways
Major Streams & Rivers
Water Bodies

National Forest System Lands
- Dixie National Forest
- Wilderness Areas
- Inventoried Roadless Areas
- Brian Head Ski Resort

Other Land Administration
- Bureau of Land Management
- National Park Service
- Private
- State of Utah

Alternative C (% of Dixie National Forest) (2)
- Not Available (5.5%)
- No Lease (3.8%)
- No Surface Occupancy (76.4%)
- Controlled Surface Use (14.2%)
- Timing Limitation (3)

NOTES
(1) Not all roads are shown. Only some roads are depicted for orientation purposes.
(2) Percentage of Dixie National Forest with federal surface ownership (does not include private lands). Percentages are rounded.
(3) Timing Limitation imposes additional leasing requirements on some Controlled Surface Use and Standard Lease Term areas.



Oil & Gas Leasing EIS on Lands Administered by the Dixie National Forest

FIGURE ROD-1c

Powell Ranger District

Alternative C

1:320,000 | 1 in = 5 miles

Horizontal Datum = NAD 83
Coordinate System = Zone 12N

- Cities

Forest Sites
- Campgrounds
- Visitor Centers

- Highways
- Minor Roads (1)
- Major Streams & Rivers
- Water Bodies

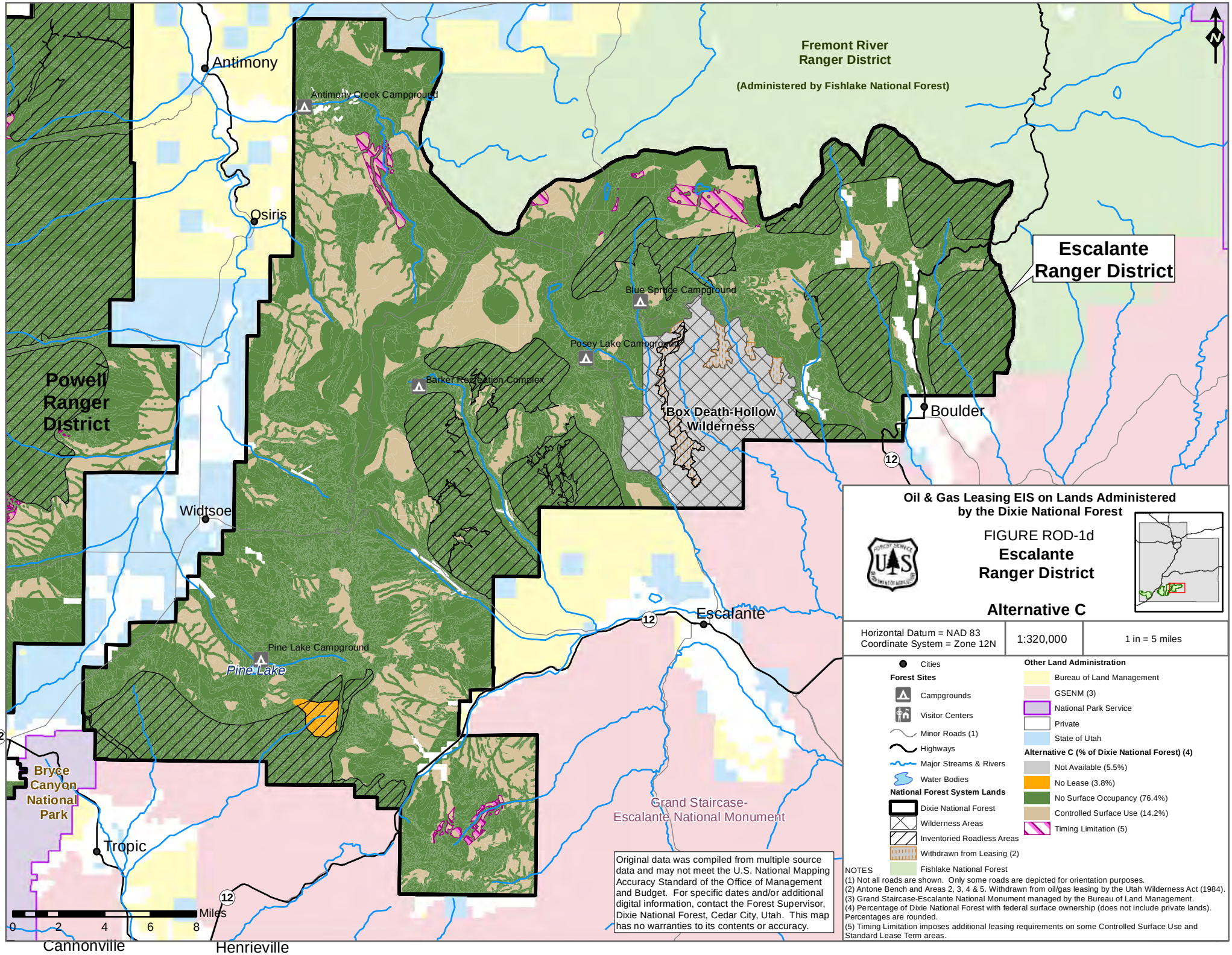
National Forest System Lands
- Dixie National Forest
- Wilderness Areas
- Inventoried Roadless Areas
- Fishlake National Forest

Other Land Administration
- Bureau of Land Management
- GSENM (2)
- National Park Service
- Private
- State of Utah

Alternative C (% of Dixie National Forest) (3)
- Not Available (5.5%)
- No Lease (3.8%)
- No Surface Occupancy (76.4%)
- Controlled Surface Use (14.2%)
- Timing Limitation (4)

Original data was compiled from multiple source data and may not meet the U.S. National Mapping Accuracy Standard of the Office of Management and Budget. For specific dates and/or additional digital information, contact the Forest Supervisor, Dixie National Forest, Cedar City, Utah. This map has no warranties to its contents or accuracy.

NOTES
(1) Not all roads are shown. Only some roads are depicted for orientation purposes.
(2) Grand Staircase-Escalante National Monument Managed by the Bureau of Land Management.
(3) Percentage of Dixie National Forest with federal surface ownership (does not include private lands). Percentages are rounded.
(4) Timing Limitation imposes additional leasing requirements on some Controlled Surface Use and Standard Lease Term areas.


Fremont River
Ranger District
(Administered by Fishlake National Forest)
Escalante
Ranger District
Powell
Ranger
District
Antimony
Antimony Creek Campground
Osiris
Blue Spruce Campground
Posey Lake Campground
Barker Recreation Complex
Box Death-Hollow
Wilderness
Boulder
Widtsoe
Escalante
Pine Lake Campground
Pine Lake
Bryce
Canyon
National
Park
Tropic
Grand Staircase-
Escalante National Monument
Cannonville
Henrieville
12
Miles
0 2 4 6 8
Oil & Gas Leasing EIS on Lands Administered
by the Dixie National Forest
FIGURE ROD-1d
Escalante
Ranger District
Alternative C
Horizontal Datum = NAD 83
Coordinate System = Zone 12N
1:320,000
1 in = 5 miles
Cities
Forest Sites
Campgrounds
Visitor Centers
Minor Roads (1)
Highways
Major Streams & Rivers
Water Bodies
National Forest System Lands
Dixie National Forest
Wilderness Areas
Inventoried Roadless Areas
Withdrawn from Leasing (2)
Fishlake National Forest
Other Land Administration
Bureau of Land Management
GSENM (3)
National Park Service
Private
State of Utah
Alternative C (% of Dixie National Forest) (4)
Not Available (5.5%)
No Lease (3.8%)
No Surface Occupancy (76.4%)
Controlled Surface Use (14.2%)
Timing Limitation (5)
Original data was compiled from multiple source data and may not meet the U.S. National Mapping Accuracy Standard of the Office of Management and Budget. For specific dates and/or additional digital information, contact the Forest Supervisor, Dixie National Forest, Cedar City, Utah. This map has no warranties to its contents or accuracy.
NOTES
(1) Not all roads are shown. Only some roads are depicted for orientation purposes.
(2) Antone Bench and Areas 2, 3, 4 & 5. Withdrawn from oil/gas leasing by the Utah Wilderness Act (1984).
(3) Grand Staircase-Escalante National Monument managed by the Bureau of Land Management.
(4) Percentage of Dixie National Forest with federal surface ownership (does not include private lands). Percentages are rounded.
(5) Timing Limitation imposes additional leasing requirements on some Controlled Surface Use and Standard Lease Term areas.

2.1 Changes to Forest Plan

My decision will amend the Forest Plan to update general management direction, the number of acres available for mineral leasing (Forest Plan, Page II-41), and leasing prescriptions (Forest Plan, Appendix C) as they pertain to oil and gas leasing on lands administered by the Dixie National Forest.

The forest plan amendment that my decision approves is Amendment # 24 (Appendix ROD-A).

2.1.1 Significance of Forest Plan Amendment

The "significance" of a forest plan amendment must be determined. It is important to note that there is a difference between "significance" of the change to a forest plan and "significance" of the environmental impacts of the Proposed Action as defined by the Council on Environmental Quality (CEQ).

2.1.1.1 Forest Service Manual 1920, Chapter 1926.51

I reviewed FSM 1920, Chapter 1926.51, and find that the amendment falls within circumstances that could result in changes to the Forest Plan that are not significant and have determined the following for the amendment:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.

   This amendment will not alter the Forest Multiple Use Goals and Objectives (Forest Plan, Chapter IV, Section B). This amendment is the result of more site-specific analysis based on updated resource knowledge.

2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.

   The decision does not alter management area boundaries.

   Amending the number of acres available for leasing, updating the current leasing environment, and revising Forest Plan Appendix C does not change or affect the management prescriptions across the Forest. The amendment will not alter the Forest's ability to manage lands for their desired emphasis.

3. Minor changes in standards and guidelines.

   This change amends Forest Plan Appendix C with a revised Appendix C(b) that

includes specific stipulations; lease notices; waivers, exceptions, and modifications direction applicable to oil and gas leasing for lands administered by the Dixie National Forest. The changes to standards and guidelines make them consistent with the new stipulations for oil and gas leasing. The new stipulations do not affect the Forest's ability to fully implement other standards or guidelines.

4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

   This criterion does not apply to this decision.

2.1.1.2 Forest Service Manual 1920, Chapter 1926.52

I have also considered FSM 1920, Chapter 1926.52 and find that the amendment would not result in circumstances that may cause significant change to the Forest Plan:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected.

   The amendment will not significantly alter the levels of multiple-use goods and services projected in the Forest Plan, Chapter 5 Section C. The amendment changes the number of acres available for oil and gas leasing on lands administered by the Dixie National Forest to 1,478,227 acres and designates 62,614 acres as not available for oil and gas leasing at this time. The former Teasdale Ranger District of the Dixie National Forest, approximately 253,707 acres, is now administered by the Fishlake National Forest. Oil and gas resources of this area will continue to be managed according to the 1986 Dixie Forest Plan. Based on the estimate of actual development, the increase of available acres is not expected to result in an increase in actual oil and gas leasing development. The amendment makes no changes to affect other goods and services.

2. Changes that may have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.

   The amendment designates 1,478,227 acres of lands administered by the Dixie National Forest as administratively available for leasing under specific resource protecting stipulations. If the entire gross surface disturbance estimated in the Reasonably Foreseeable Development Scenario were to occur over the next 15 years, including well pads, production facilities, pipelines and powerlines, there would be approximately 1,672 acres of disturbance prior to reclamation, approximately 0.1% of the acres managed under the Forest Plan.

2.2 Rationale for the Decision

I have selected Alternative C because it provides the best attainment of the project's purpose and need while still being sensitive to other resource concerns. Specifically, I have considered the degree to which each alternative met the purpose and need for action; the degree to which each alternative responds to significant issues; and the degree to which the alternative is responsive to public concerns and comments on the Draft EIS and SIR.

The discussion below details why I find that Alternative C best meets the purpose and need, responds to public concerns, and address resources issues.

2.2.1 Meeting the Purpose and Need

The purpose of this Record of Decision is to document USFS decisions regarding: 1) which lands will be administratively available for oil and gas leasing in accordance with the Leasing Reform Act and Federal regulations 36 CFR 228, Subpart E, and 43 CFR 3100 and 2) authorization of BLM to offer specific lands for lease where BLM is currently considering leasing. My decision includes lease terms and stipulations that I have determined are necessary to protect the surface resources.

Alternative C makes 1,478,227 acres available for leasing while protecting surface and subsurface natural resource values. While the alternative allows leasing on a large portion of the Dixie National Forest, it contains lease terms and stipulations which protect environmental features and ensure sustainability of the natural resources. In choosing Alternative C, I have weighed the need for resource protection with the desire to make oil and gas leasing possible.

2.2.2 Consideration of the Issues

At the beginning of the EIS development process, 13 key resource issues were identified through public scoping. Alternatives were developed based on these issues. After the Draft EIS analysis was made available to the public and comments were received, the alternatives, particularly Alternative C (the preferred), were modified in several ways to accommodate issues that were again raised by individuals and groups who responded. Five themes emerged as the primary values of the public following the analysis of comments on the Draft EIS and SIR. The concern for protection of the following resource values, as well as input from the interdisciplinary team, ultimately drove the development, design, and analysis of the alternatives in the Final EIS:

- Air Resources
- Water Resources
- Inventoried Roadless Areas
- Special Status Species
- Park Protective Measures

2.2.2.1 Air Resources

Many substantial comments were received regarding air resources in the Draft EIS and SIR from environmental groups and government agencies, including Department of Interior, National Park Service, and the Environmental Protection Agency (EPA). These comments concerned compliance with Federal regulations and standards in the Clean Air Act and documents such as Federal Land Managers Air Guidance (FLAG), as well as the air quality model we used, and our approaches to cumulative effects and climate change.

A large portion of the air resources analysis was analyzed in the Draft EIS itself, but additional analysis was provided in the SIR. This was due to internal discussions between the USFS, EPA, and Utah Department of Air Quality (UDAQ) regarding the most appropriate course of action for air modeling and cumulative effects analyses, which extended beyond the publication date of the Draft EIS (October 2008). The SIR was published February 2010, after the appropriate modeling protocol and analysis were developed in collaboration with the agencies.

In addition to a new air model, the SIR contains a detailed evaluation of climate change impacts following USFS guidance published in January 2009 and impacts to Air Qualtiy Related Values (AQRVs) in the FLAG document being developed around the time of the Draft EIS (final revised Phase I report published October 2010). In this way the SIR is a very current document, and in the case of climate change, the first of its kind. The updated air resources analysis that includes the SIR is a thorough and conservative analysis of potential impacts to air resources from connected actions, as well as being an effective tool that can be used to determine when more analysis will be required for a specific proposal. The openness of the process by which we developed and revised the air analyses in response to comments, and coordinated with agencies, enabled us to put out a relevant document that reflects the current standards of air quality analysis.

On June 23, 2011 a Memorandum of Understanding (MOU) Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process was signed by USDA, USDI, and EPA (USDA et al. 2011; see Appendix ROD-B). The MOU set forth a standardized approach to protect air quality and AQRV's in connection to oil and gas development on Federal lands.

Although this analysis began prior to the effective date of the MOU and is not subject to the MOU, it largely follows the process as outlined in that document (Appendix ROD-B). I have determined that the goals of the MOU have been met by the inclusion of air protective measures in the Oil and Gas Construction and Operating Standards and Well Site Design Requirements (Appendix C of the Final EIS) as well as the development of a Lease Notice and CSU to protect air resources (listed in the Forest Plan Amendment, Appendix ROD-A).

A CSU stipulation was developed to accommodate air resources surrounding Class I areas such as Bryce Canyon, Zion, Capitol Reef, and Grand Canyon National Parks, as well as to meet the intent of FLAG guidance. Updated air protection measures in Appendix C of the Final EIS will become part of the Dixie supplement to the Forest

Service Handbook 2809.15.

In totality, we have achieved several layers of protection for our air quality on the Forest and that of Class I areas within 60 km, and even 100 km, which will ensure that Federal regulations are met and that visibility, ozone, and carbon dioxide levels will be subject to scrutiny and further analysis if necessary. As far as specific developments are concerned, we provide direction for a conservative analysis of air resources as part of the NEPA process for any future development.

2.2.2.2 Water Resources

The Dixie National Forest is in one of the driest regions in the United States; many adjacent off-forest areas are arid lands whose water supply comes directly from high-elevation Forest streams and aquifers. Areas within the Forest that are overlain by porous lava fields serve as aquifer recharging areas that supply groundwater to lower elevation areas on and off-Forest. In addition, municipal watersheds on the Forest supply drinking water for many of the surrounding communities. Many of our public and agency comments included requests for additional restrictions in these areas.

Environmental groups and government agencies expressed concern over possible contamination of sensitive aquifers within lava fields. These are known aquifers which are sensitive to contamination from surface activities. Their extent, depth, and hydrologic properties are not well understood. Originally, we considered an NSO stipulation in these areas, which would have allowed directional drilling. However, after careful consideration of the analysis and comments received in the Draft EIS, we decided to change the stipulation in these areas for analysis in the Final EIS to a No Lease. We will not allow leasing within lava fields overlaying sensitive aquifers to avoid potential impacts from seismic exploration and directional drilling.

Alternative C would protect municipal watersheds under NSO-21, which we believe is adequate to protect municipal watersheds at the leasing stage. Site-specific analyses of proposals within municipal watersheds will allow a proper assessment and mitigation of any impacts to these areas to prevent contamination of public drinking water. The Pine Valley Ranger District contains numerous municipal watersheds protecting water for St George, Central, New Harmony, Leeds, Enterprise, Pine Valley, Pintura, and Sawyer Springs. Cedar City Ranger District protects municipal watersheds serving the communities of Brian Head, Panguitch, Summit, and Parowan. A single municipal watershed in the Powell Ranger District is designated to protect the culinary water for Antimony. In addition, the Escalante Ranger District contains three municipal watersheds for the towns of Antimony, Escalante, and Boulder.

The BLM expressed concern specifically about ground water resources, which they are ultimately responsible for protecting. The BLM regulates the exploratory and development well drilling and provides protection of groundwater through a planning process, implementation of lease stipulations and lease notices, BLM regulations, Onshore Oil and Gas Orders, the *Gold Book* (BLM and USFS 2007), mitigation, and

monitoring. In Utah, the BLM utilizes Instruction Memorandum No. UT 2010-055 regarding Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development – Utah BLM, dated July 20, 2010.

In our consideration of BLM concerns on this issue, we applied three Lease Notices (Sole Source Aquifers, Groundwater Protection Zones 2-4, and Transient Non-Community Water Systems Zones T2 and T4) that will ensure adherence to State Law regarding drinking water (R309-600 Utah Admin Code Source Protection: Drinking Water Source Protection for Groundwater Sources) and to the latest BLM direction on the issue.

These Lease Notices, in addition to our Appendix C in the Final EIS, the *Dixie National Forest Oil and Gas Construction and Operating Standards and Well Site Design Requirements,* comply with provisions in the Memorandum of Understanding between the Forest Service and BLM (MOU *Concerning Oil and Gas Leasing and Operations,* FS Agreement No.: 06-SU-11132428-052; BLM and USFS 2006), which reiterates the responsibilities of the USFS to manage and mitigate surface impacts and the BLM to manage the subsurface resources. In making my decision, I believe these measures are adequate to protect groundwater resources from future exploration and development.

2.2.2.3 Inventoried Roadless Areas

In 2001, the USFS promulgated a Roadless Rule that provided certain protections for Inventoried Roadless Areas (IRAs). That rule has since been the subject of a number of conflicting rulings from the Federal courts. IRAs represent some of the largest and most extensive tracts of undeveloped land on the Dixie National Forest and are valued for their roadless nature, undeveloped values, and associated environmental characteristics and attributes. Many people value the natural setting, solitude, and primitive recreation opportunities that IRAs can provide.

In the Draft EIS a dual analysis of Alternative C, D, and E was our way of addressing the uncertainty surrounding the Roadless Rule. We retained the dual analysis for only Alternatives D and E in the Final EIS. The dual analysis consists of analyzing the environmental impacts of the alternatives under two scenarios: (1) an NSO stipulation that would prohibit road construction and timber harvest following the intent of the 2001 Roadless Area Conservation Rule, and (2) a less restrictive leasing option (CSU or SLT) that would allow new disturbances for oil and gas exploration and development. The second scenario provides the framework to make decisions concerning oil and gas leasing in these areas should any changes in the applicability of the 2001 Roadless Area Conservation Rule occur in the future due to judicial actions.

Initially, our Alternative C underwent a dual analysis in order to incorporate an administrative CSU stipulation. After receiving public comment and considering the early analysis, it was decided that those areas mapped in the 2001 set of maps for IRA's would be assigned NSO regardless of the status of the Roadless Rule because of the importance of protecting the undeveloped values of the areas. The original

administrative CSU was basically an NSO that prohibited mechanical construction or reconstruction of roads. Application of that CSU was determined to be confusing to the public so a single NSO was assigned to IRAs under Alternative C allowing no surface disturbance, permanent developments, road construction or reconstruction, or timber cutting within IRAs. We feel confident that the NSO will preserve roadless and wilderness characteristics.

Monitoring results from reclaimed well pads at the Citation Oil Field also played a part in the decision on IRAs. These areas have not returned to their original state after 50-60 years. Thus, we considered that well pad or road construction would likely have long term effects on roadless and wilderness attributes of IRAs, using a 50-year timeframe. We concluded that roadless attributes such as 'high quality or undisturbed soil, water, and air' and 'reference landscapes,' as well as wilderness attributes such as 'solitude' and 'wilderness manageability and boundaries' would be impacted by oil and gas construction (FEIS, Section 4.3.4), and that NSO was the best option to preserve these characteristics. I believe my decision for NSO in IRAs protects roadless characteristics and wilderness character by not allowing wells, drill pads, roads, or other facilities that would affect the undeveloped values and roadless and wilderness character of these areas.

About 35 percent of the Forest (565,922 acres) is within IRAs. These areas are available for leasing; however, the NSO stipulation will not allow surface occupancy. At this time, the technology exists to use directional drilling to access some of the potential reserves in these areas. I recognize that directional drilling is less precise and more expensive than conventional drilling methods and not all of the areas can be reached with this method. Typically, with current technology, reserves can be reached by directional drilling up to approximately a mile from a well site. Due to the technology available for directional drilling, I believe my decision allows a balance of development of oil reserves in IRAs while maintaining the integrity of their roadless and wilderness character.

Related public concerns were raised by environmental groups regarding 'undesignated' areas on the Forest that may have wilderness characteristics. As a response to these concerns we added an analysis of "Unroaded-Undeveloped" areas to the Final EIS. It should be noted that 59 percent of these areas of concern overlap with IRAs that will be protected under an NSO stipulation regardless of the court rulings. Overall, 91 percent of "Unroaded–Undeveloped" areas would be protected by NSO stipulations due to overlap with other resources. Some "Unroaded-Undeveloped" areas would be available for oil and gas development under CSU.

2.2.2.4 Special Status Species

Many people expressed concern that connected actions would have detrimental effects on fish and wildlife, particularly special status species. Wildlife of most concern to the public included Utah prairie dog, greater sage-grouse, big game, sensitive fish and Blue Ribbon Fisheries. Several agencies, groups, and individuals expressed a preference for

Alternative B, which would preserve all areas of sensitive wildlife habitat under NL or NSO stipulations.

The Forest listened closely to these concerns and modified its preferred alternative (Alternative C) in the Final EIS in several ways that would provide more protection to special status species. These modifications included:

- increasing the NSO buffer in sensitive fisheries habitat from 300 to 500 feet,
- extending sensitive fisheries habitat to include suitable as well as occupied,
- prohibiting road crossings under NSO in fisheries habitat,
- increasing the greater sage-grouse lek buffer from 1 to 2 miles (of sagebrush), and
- adopting the US Fish and Wildlife Service Lease Notices for all threatened and endangered species.

The Forest decided to increase the buffer in sensitive fisheries habitat for several reasons. Sensitive trout species are of particular concern to the public and have become isolated in headwater streams on the Dixie National Forest, due to habitat loss from impacts such as sedimentation, nonnative species introductions, and water diversions. Conservation Agreements and Strategies for Colorado cutthroat trout and Bonneville cutthroat trout list objectives to secure, enhance, restore, and reduce threats to populations as well as the larger watershed conditions that support and maintain the viability of riparian-dependent communities that support fisheries streams. As a signatory to these agreements, the Forest believes it is important to the future viability of these sensitive fish species that the oil and gas leasing decision protect a conservatively wide area surrounding occupied and suitable habitat.

Several commenters expressed concerns about greater sage-grouse, which the US Fish and Wildlife Service found were warranted for listing under the Endangered Species Act in spring of 2010 (but precluded due to other species having higher priority). Several commenters on the Draft EIS preferred the buffer around sage-grouse leks be changed from 1 mile (in the Draft EIS) to 2 to 4 miles. There was concern that studies of greater sage-grouse in the Wyoming oil sands were not incorporated in the analysis; these studies describe adverse impacts to breeding activities within 2 miles. The Forest listened closely to these requests. We reached a compromise in extending the greater sage-grouse buffer to 2 miles for suitable habitat (e.g., sagebrush, grassland). Unsuitable habitats that fall within the buffer from 1-2 miles (e.g., ponderosa pine, aspen, mixed conifer, etc.) were excluded from the NSO stipulation. Because the projected development under this decision is so minor compared to the areas where the Wyoming guidance has been developed (one 20 well production field versus fields with hundreds of wells), and because sage-grouse populations on the Dixie have not contracted in size at the same scale as populations in Wyoming, I believe that sage grouse are suitably protected under this decision. In addition to NSO around leks, Alternative C provides a CSU within brood-rearing habitat to insure that road use and ancillary facilities do not negatively affect sage-grouse. In this we used mapped habitat,

not all of which is occupied, to be covered by the stipulations. This will insure that potential future habitat is protected.

2.2.2.5 Park Protective Measures

The Dixie National Forest is within 60km of several National Parks (Bryce Canyon, Zion, Capitol Reef, Cedar Breaks, and Grand Canyon). Comments on the Draft EIS from the Department of Interior, EPA, and others expressed concern over impacts to these National Parks and Class I areas from connected actions, and subsequent conflicts with the mission of the national parks, mainly in the area of air quality, night sky preservation, and visual resources.

The Environmental Protection Agency supported my decision that a protective area be placed around Bryce Canyon National Park to limit surface occupancy in areas visible from the park. The Final EIS documents the consideration of these and other comments on the Draft EIS.

We responded to comments regarding night sky pollution by measuring impacts to night skies in the Final EIS with a specific measurement indicator and documenting the specific impacts to night skies surrounding Bryce Canyon National Park under each alternative. The level of night sky pollution varied from no effect under Alternative B to potentially major and long-term under Alternative E.

We responded to specific concerns for Bryce Canyon National Park by reducing impacts to the areas immediately surrounding the park from potential development or production activities using a visual impact model. In Alternatives B, 1,284 acres of the Forest that were adjacent to Bryce Canyon National Park were analyzed as NL. In Alternative C 1,925 acres were analyzed with an NSO stipulation. In addition, the Forest agrees to work with NPS in the event activities are proposed adjacent to Bryce Canyon National Park and to mitigate impacts to visual resources for National Park Service lands as much as is feasible. All surface use plans of operations will be available for review and comment by the appropriate National Park Service administration.

2.3 Consideration of Other Resource Areas

We considered effects to other resource areas analyzed by the interdisciplinary team in the process of preparing the proposed action and identifying the consequences of the alternatives in the EIS. The team considered the effects of each of the alternatives on eligible Wild and Scenic Rivers, recreation, fish and wildlife (non-special status), soils, forest vegetation, transportation systems, social and economic environment, special areas (e.g., Research Natural Areas, administrative sites), fire and fuels, noxious weeds, rangeland resources, and cultural resources. All practical means to avoid or minimize environmental harm for the alternative selected have been adopted. We believe that all potential effects have been disclosed and that the Forest Plan standards and guidelines will be met.

2.4 Consideration of Public Comments and Concerns

An oil and gas leasing analysis is the first step in the process of accommodating oil and gas exploration and development on the Forest. Although the act of deciding which Dixie National Forest lands could be offered for lease does not cause environmental impacts, impacts from connected actions to leasing (i.e., exploration and development activities that could follow leasing actions) were analyzed in the EIS, and were the source of most public concerns and comments.

There were many members of the public who expressed the desire for protecting resources over allowing oil and gas activities that may negatively impact those resources. The resources of concern were biological, including fish and wildlife, and physical, including water and air. The preservation of areas for recreation or other values such as roadless were also concerns. A number of individuals also expressed an interest in fewer restrictions on oil and gas leasing, justified by the potential rewards of an oil and gas discovery and the ability of resource extraction to be low-impact.

I have integrated public concerns about resource protection into the preferred alternative leaving 231,513 acres of the Forest open to leasing under CSU/TL restrictions, where development and production activities could take place under moderate restrictions, which accommodates opportunity for the level of activity predicted in the RFDS (i.e., about 60 exploration wells and one production field). Additionally, 1,246,714 acres containing sensitive resource areas may be available for lease but surface-disturbing activities would be limited as these areas may be protected by No Surface Occupancy stipulations.

Many judgments and compromises are incorporated into this final decision, which reflects the intent to balance our multiple use and resource protection responsibilities. Given the nature of this decision, no individual or group is likely to find all aspects of the leasing decision to their liking. However, we believe Alternative C is the most inclusive with regard to incorporating specific public comments and concerns, including those of industry and agencies, relative to the other alternatives. As such, we believe Alternative C achieves the best balance between competing interests.

2.5 Authority

The USFS has the authority and responsibility to determine which National Forest System lands are available for oil and gas leasing, and the specific lands which the BLM may offer for lease. The USFS is also responsible for prescribing lease terms that provide reasonable protection to surface resources and values, approving the lessee's Surface Use Plan of Operations, and insuring that the requirements of the leases and operating plans are carried out according to their terms. The regulations applicable to the above are found in Title 36, Code of Federal Regulations, Part 228, Subpart E.

2.6 Cooperating Agencies

The BLM and State of Utah participated as cooperating agencies during the analysis process. The BLM is responsible for issuing oil and gas leases on Federal lands and on private lands for which the Federal government retains mineral rights. The BLM cannot issue leases for lands administered by the Forest Service without consent from the Secretary of Agriculture. The State of Utah participated as a cooperating agency due to existing state jurisdiction by law and/or special expertise related to many resources including air quality, mining regulation, water quality, wildlife, and socioeconomics.

3.0 CHANGES BETWEEN DRAFT AND FINAL EIS

A number of changes were made to the Draft EIS in preparing the Final EIS. These changes were primarily minor edits, corrections, and updates, and are reflected in the Final EIS. Chapter 7 was added to the Final EIS and contains an analysis of the public comments received on the Draft EIS and responses from the Dixie National Forest. The public involvement process since the Draft EIS is described in detail in Chapter 7, and summarized in Section 1.9.1 of the Final EIS.

A Supplemental Information Report (SIR) was issued in January 2009 to address comments on the Draft EIS from agencies and the public concerning air resources and climate change. Other changes (i.e., not related to air and climate change) were not substantial changes to the proposed action, or significant new circumstances bearing on the proposed action (following 40 CFR Part 1502.9) that would require a supplemental Draft EIS. These changes are summarized in the following sections.

3.1 Revised Leasing Options

Several changes were made to the action alternatives, and specifically leasing options, in response to public comments on the Draft EIS. Other changes to leasing options reflect Forest or other Agency decisions made since the Draft EIS that have bearing on the resources analyzed. Table ROD-3 summarizes the changes to leasing options since the Draft EIS.

Table ROD-3

Changes From Draft EIS to Final EIS (Reflected in the New GIS Model).

Resource	DEIS Leasing Option	FEIS Leasing Option	Alternatives Affected
Inventoried Roadless Areas	NSO (modified*)	NSO	C, D1, and E1
SIO Unassigned	LN	CSU	B, C, D, and E
NPS Protective Measure (new)	n/a	NL	B
	n/a	NSO	C
ROS Primitive	NL	NSO	C
Sage-Grouse Leks	1-mile buffer	2-mile buffer	B and C
Fisheries Habitat	300-foot buffer	500-foot buffer	C
Boreal Toad Habitat (new)	n/a	Added to "USFS-Sensitive Species and Suitable Habitat"	A-E
Desert Tortoise Habitat	various	No suitable habitat determination	A-E
Desert Tortoise Critical Habitat	various	No suitable habitat determination	A-E
Lava Fields over Sensitive Aquifers	NSO	NL	B and C
Class I Airsheds – 60 km buffer (new)	n/a	CSU	A-E
Iron Town Historic District	various	No acres on Dixie National Forest	A-E

*Actual leasing option CSU but called a "modified NSO."

3.2 New GIS Model

The Geographic Information Systems (GIS) model was re-run to incorporate the changes made to leasing options and the addition of new resources in the Final EIS. The new model output, or the number of acres under each leasing option across the Forest, and revised baseline acres where appropriate, is reflected in each resource section in the Final EIS.

3.3 Errata

Errata correct (**Section 3.3.1**) or expand on data previously presented (**Section 3.3.2**), or incorporate new information or decisions since the Draft EIS (**Section 3.3.3**).

3.3.1 Clarifications

Clarifications to the Draft EIS were made to correct errors or to eliminate confusion. Most were made as responses to public comments on the Draft EIS.

- Chapter 1
  - Section 1.5.2, Lands Not Legally Available for Leasing, clarification to language describing Utah Wilderness Act of 1984.
  - Section 1.5.2, Lands Not Legally Available for Leasing, clarification to

language describing Split Estate parcels.
    - Section 1.8.2, 2001 Roadless Area Conservation Rule and Legal Activity, clarification to how Roadless Areas on the Dixie are officially identified.
- Chapter 3
    - Section 3.5.4, Aquatic Species and Habitat, clarification to which waterbodies on the Dixie are Blue Ribbon Fisheries, following a memo from the Blue Ribbon Fisheries Advisory Council dated 26 March 2006.
    - Section 3.6.2.3, Candidate Species, GIS error and clarification on acres of greater sage-grouse brood-rearing habitat within the Dixie.
- Chapter 4
    - All Sections, all effects determinations under NL were changed to “No Effect” (from “negligible”).
    - Section 4.6.4, Impacts of Connected Actions by Leasing Option, reducing impact adversity determinations for Utah prairie dog, greater sage-grouse, and pygmy rabbit from invasive plants, as previous analyses did not incorporate environmental protection measures (listed in Appendix C of the FEIS).
    - Sections 4.6.4, 4.6.5, 4.9.4, and 4.9.5, Impacts of Connected Actions by Leasing Option and by Alternative: Reduced impact adversity determinations for pygmy rabbit, sensitive bats, sensitive raptors, big game, and marginally unstable slopes (soils) under CSU for some of the action alternatives due to misunderstanding (by the consultant) of the application of resource-specific CSUs.
    - Section 4.6.4, Impacts of Connected Actions by Leasing Option, road density was clarified as Open Motorized Road Density (OMRD).
    - Section 4.7.4, Impacts of Connected Actions by Leasing Option, clarification added to lava fields over sensitive aquifer impacts regarding the BLM Onshore Oil and Gas Order requirement for well casing.
    - Section 4.12.2.4 and 4.12.2.5, Class I Cumulative Impact Analysis and Visibility and Deposition Analysis, clarifications added (since SIR) regarding the need for additional air quality analyses for proposed projects and the criteria under which further analyses are required.
    - Section 4.12.2.7 (new), Direct Ozone Impacts, this section was added to clarify that ozone impacts are discussed in the cumulative effects section of Air Resources (5.12.3.1).
    - Section 4.17, Forest Plan Consistency Determination, assessments of compliance with the Forest Plan in the Draft EIS were eliminated due to the Forest Plan amendment that will be implemented to reflect the stipulations needed for resource protection.
- Chapter 5
    - Section 5.6.2, Past, Present, and Reasonably Foreseeable Future Actions, cumulative effects discussion regarding grazing effects to Utah prairie dog and greater sage-grouse expanded to include more of the scientific information available.

3.3.2 Expanded Analyses

Expanded analyses were made as a result of the comments received on the Draft EIS. Apart from the SIR, which presented a new analysis on Climate Change and other aspects of Air Resources not in the Draft EIS (e.g., ozone), the main areas with information added were night skies (Visual Resources), "Unroaded-Undeveloped" areas (IRAs/WSRs), and greater sage-grouse (Special Status Species). In the case of greater sage-grouse, impact determinations were re-assessed for alternatives B-E. Scientific evidence or Agency direction not previously considered was added to these discussions in response to public comments on the Draft EIS from government agencies and environmental groups.

The Air Resources analysis expanded upon in the SIR was further expanded in response to public comment on the SIR. Areas with new information include National Ambient Air Quality Standards (NAAQS) for nitrogen oxides and ozone, secondary $PM_{2.5}$ analysis, updated ozone monitoring data from Zion National Park, an expanded ozone analysis based on the Uinta Basin Air Quality Study, and additional information on the impacts to sagebrush habitat from climate change.

3.3.3 New Information or Agency Direction (since 2008)

The following decisions, regulations, or information were incorporated in the Final EIS where applicable:

- Omnibus Public Land Management Act 2009
- Memorandums 1042-154 (2009) and 1042-155 (2010) (Roadless Area Conservation Rule; RACR)
- Wild and Scenic Rivers Suitability Study (2008)
- USFS Strategic Plan (2007-2012)
- National Visitor Use Monitoring Study (2010)
- Motorized Travel Plan (2009)
- Dixie National Forest Annual Monitoring Reports (2008, 2009, and 2010)
- Dixie National Forest Aquatic Monitoring Amendment (2010)
- Conservation Agreements for southern leatherside (UDWR 2010)
- New BLM Resource Framework Plans – Cedar City and Richfield Field Offices (both 2008)
- Alton Coal Development update
- Updated R4 Threatened, Endangered, Sensitive, and Proposed species list (2011)
- New definition of Sensitive Fisheries Habitat on the Dixie (occupied *and suitable*; 2009)
- Updated occurrence and habitat data for Threatened, Endangered, and Sensitive species on the Dixie (2008-2010)
- Biological Opinion from USFWS (2011), including Lease Notices
- USFS Schedule of Proposed Actions (SOPA) (since 3rd quarter 2010; updates to Foreseeable Future Actions)

- BLM Environmental Notification Bulletin Board (ENBB) (since September 2010; updates to Foreseeable Future Actions)

4.0 TRIBAL CONSULTATION

In compliance with the National Historic Preservation Act of 1966 and Executive Orders 12875 (Enhancing Intergovernmental Partnership), 13007 (Indian Sacred Sites), 13084 and 13175 (Consultation and Coordination with Indian Tribal Governments), the Dixie National Forest identified tribes associated with the project area and initiated government-to-government consultation. These Native American Indian groups included the Paiute Indian Tribe of Utah, Navajo Nation, Hopi Tribal Council, Kaibab Paiute Tribal Council, Ute Indian Tribe, and Ute Mountain Tribe. No Indian tribe provided comments in response to this consultation.

During the analysis of potential lease areas, the Heritage Program Manager took into account (using the cultural resource record located in the Dixie National Forest Supervisor's Office) all the known potential of an area that was proposed for leasing and identified those areas within the Forest that have potential for major effects to known cultural resources. These areas were placed under CSU or Lease Notice under Alternative C, and as the drill sites and well locations are identified at a later stage (site-specific NEPA analysis), the Federal permitting process will require the permittee to conduct all necessary inventories and compliance with any mitigation required under Section 106 of the 36 CFR 800 Regulations prior to drilling.

5.0 PUBLIC INVOLVEMENT

The Final EIS was developed through a coordinated process involving collaboration with other agencies, input from the public, and by ad hoc teams composed of employees from the USFS, BLM, and other agencies.

The Notice of Intent (NOI) is the first step in initiating the public scoping process under NEPA. The NOI for this EIS was published on December 29, 2006 in the Federal Register, Volume 71, No. 250, Page 78395. The publication of the NOI initiated the formal scoping period. A legal notice describing the proposal and requesting scoping input was also published in *The Spectrum,* St. George, Utah on December 30, 2006 and press releases were sent to the *Cedar City Review* and *Daily News*, Cedar City, Utah and *Garfield County Insider*, Panguitch, Utah on January 3, 2007. In addition, scoping letters requesting scoping input were sent to interested individuals, agencies, and groups on December 19, 2006. Scoping meetings were held in St. George, Cannonville, and Cedar City on January 16, 17, and 18, 2006, respectively. The meetings provided a project description, maps of the analysis area, and a forum for exchange of information and ideas or concerns related to the proposal. An additional open house was held in Escalante, Utah on February 12, 2006. The open house was not an official scoping meeting but did provide a project description, maps of the analysis area, and a forum for exchange of information, ideas, and concerns. Comment

forms were available at all three scoping meetings and the open house. Beginning December 29, 2006, the Dixie National Forest's website has contained pertinent information on the project such as a project description, maps, and contact information. In addition, the web site provided an on-line comment form. Additional details concerning public involvement and scoping results can be found in the Project Record.

On October 17, 2008, a Notice of Availability (NOA) announcing the availability the Draft EIS for a 60-day public comment period was published in the Federal Register (http://www.gpoaccess.gov/fr/) and on the EPA's Federal Register of Environmental Documents (http://www.epa.gov/fedrgstr/). Letters were mailed to all parties that provided scoping comments, along with CDs containing an electronic copy of the Draft EIS if requested. These letters described the public comment period and how, where, and when to submit comments. Paper copies of the Draft EIS were distributed to all cooperating agencies and any requesting interested organization or individual. An electronic copy of the Draft EIS was also made available for download on the Dixie National Forest website. Additional paper and CD copies were made available for the public at the Cedar City BLM Office and Dixie National Forest Supervisor's Office. Public meetings for the Draft EIS were held on November 5 in Cedar City, Utah (2 attendees); November 6 in Boulder, Utah (9 attendees); and November 13 in Panguitch, Utah (0 attendees). The public comment period officially closed on December 15, 2008.

5.1 Supplemental Information Report

The SIR was published in the Federal Register on February 19, 2010. The SIR disclosed additional information prepared in response to comments received on the air resources sections of the Oil & Gas Leasing Draft EIS for the Dixie National Forest. This information was released for public review and comment prior to preparation of the Final EIS. Only those who commented during the 60-day Draft EIS comment period (17 October to 15 December 2008) were eligible to appeal the decision.

During the 60-day Draft EIS comment period a number of comments were received relative to the impact analysis for air resources. The EPA provided their comments on the Draft EIS with the exception of comments on the air quality analysis, with the understanding that an updated air quality analysis would be released as an SIR to the Draft EIS. They recommended that this study use different air emission factors for the subject facilities-based emission limitations, which would become effective in the future. This revised modeling was conducted in collaboration with the EPA and the UDAQ. The report on this modeling was revised and was made available for public review as Appendix SIR-1.

In January 2009, the USFS issued guidance on including climate change in the environmental analyses for future planning decisions. In accordance with this direction and in response to public comment, the Forest considered the effects of the proposed oil and gas leasing on climate change and the effects of climate change on the proposed action. This analysis was made available for public review as Appendix SIR-2.

As a result of the two new sources of information described above, the Dixie National Forest has modified the Air Resources sections of the Final EIS to incorporate the revised air quality impact modeling results and the evaluation of climate change. These modified sections of the Final EIS (Sections 3.12, 4.12, and 5.12) were made available for public review as the main body of the SIR.

6.0 ALTERNATIVES STUDIED IN DETAIL

The Alternatives are described here in general terms, with only major alternatives elements discussed. The reader is encouraged to review Chapters 2 and 4 of the Final EIS for the full scope of the alternatives and their effects.

Alternative A would have the least acres available for leasing, while Alternative E would have the most available, and subject only to existing laws and the terms and conditions in BLM Lease form 3100-11 (see Appendix ROD-A). Table ROD-4 displays acres of land that would be made available for leasing, and under which leasing options, by alternative.

Table ROD-4

Area by Leasing Option for the Dixie National Forest, by Alternative

Alternative	Acres[1]/Percent[2] By Leasing Option					Additional TL Overlay[4]
	NA[3]	NL	NSO	CSU	SLT	
A	90,399 (6%)	1,540,841 (94%)				
B	90,399 (6%)	1,135,658 (70%)	332,182 (20%)	73,001 (4%)	0	
C	90,399 (6%)	62,614 (4%)	1,246,714 (76%)	231,513 (14%)	0	48,696
D1	90,399 (6%)		666,500 (41%)	868,473 (53%)	5,867 (<1%)	936,550
D2	90,399 (6%)		142,189 (9%)	1,392,784 (85%)	5,867 (<1%)	788,297
E1	90,399 (6%)		565,922 (35%)		974,919 (60%)	
E2	90,399 (6%)				1,540,841 (94%)	

[1] Small discrepancies in the acreage presented for each alternative are due to the fact that the GIS database has limitations when applied over an extremely large area that result in an inability to calculate acreages that match exactly between alternatives.
[2] Percentages and totals are approximate due to rounding.
[3] Areas not legally available for leasing are included in the Table to provide context to the analysis.
[4] Areas of CSU and SLT that have additional Timing Limitations.

6.1 Alternative A

Under Alternative A, present management activities pertaining to oil and gas leasing would continue unchanged. As the current Forest Plan does not make specific decisions about which lands are available for leasing, the Forest Supervisor under this

alternative would not make any new leasing decisions and no new oil and gas leasing would be allowed on the Dixie National Forest. Existing leases, including those associated with the Upper Valley Oil Field, would not be affected. However, when these leases expire no new leases would be authorized in these areas. A NL option is listed for all resource components under Alternative A. However, it is important to note that NL would apply to all Dixie National Forest land with the exception of lands currently leased (13,454 acres). No additional lands administered by the Dixie would be made available for lease.

6.2 Alternative B

Alternative B would emphasize the protection of particular resources through the application of restrictive leasing options. With the exception of Alternative A, this alternative would apply equal or more restrictive leasing stipulations to the resource components than any of the other alternatives. Only 405,183 acres would be made available for lease and of that roughly 73,000 acres would allow surface use.

Alternative B would apply a NSO stipulation to a 500-foot buffer and a NL option to a 300-foot buffer around all waterbodies in the GIS database for the protection of these areas as well as for wetlands, floodplains, and riparian areas, and would not allow roads. In Alternative B no leasing (NL) would be considered for the following resource components:

- Inventoried Roadless Areas
- Suitable Wild and Scenic Rivers (within ¼ mile of each outer streambank)
- Areas with a ROS classification of Primitive
- Sage-grouse leks (with a 2-mile buffer)
- Sage-grouse summer, nesting, and brood rearing habitat
- Crucial and substantial deer and elk winter range
- Crucial deer and elk summer range
- Designated Critical Habitat for Mexican spotted owl
- Fisheries habitat (occupied and suitable)
- Streams, lakes, springs, wetlands, floodplains, and riparian areas
- Municipal watersheds
- Research Natural Areas
- Park protection areas

6.3 Alternative C

Alternative C was developed to be consistent with the management direction and the standards and guidelines identified in the Forest Plan; however, an amendment to the existing Forest Plan would still be required. The leasing options under Alternative C are generally less restrictive than under Alternative B, but more restrictive than Alternatives D and E. For example, in Alternative C a NL, the most restrictive leasing option is

applied only to lava fields over sensitive aquifers and Research Natural Areas. A NSO leasing option is be applied to the following resource components:

- Areas with SIO Very High or High
- Areas surrounding Bryce Canyon National Park
- Inventoried Roadless Areas
- Developed recreation sites, campgrounds, guard stations, etc. (with appropriate buffers)
- Recreation residences (with 0.25-mile buffer) and administrative sites
- Areas with ROS classification of Primitive or Semi-Primitive Non-Motorized
- Sage-grouse leks (with a 2-mile buffer)
- Goshawk nest areas (with 0.5-mile buffer)
- Mexican spotted owl Protected Activity Centers
- Utah prairie dog colonies
- Bald eagle winter concentration areas
- Peregrine falcon nests (with 1-mile buffer)
- Fisheries habitat (occupied and suitable)
- Streams, lakes, springs, wetlands, floodplains, and riparian areas
- Municipal watersheds
- Active rockfall areas, slopes >35 percent, and areas of high erosion potential
- Botanical and geological areas
- Side Hollow Ponderosa Pine Provenance Study Area
- Park protection areas

6.4 Alternative D

Alternative D is less restrictive in regard to oil and gas development and more land would be available for lease under SLT than under either Alternatives B or C. Leasing options are generally less restrictive than Alternative C. However, in many cases the leasing options are the same as under Alternative C. It is more restrictive than Alternative E. Under Alternative D, the following resource components (5,867 acres) would be available for lease under SLT.

- Visual Partial Retention/SIO Moderate
- Visual Modification/SIO Low
- Designated dispersed areas
- ROS: Roaded Natural
- Marginally unstable slopes

In addition, under dual analysis, Alternative D will be evaluated as two separate sub-alternatives: D1 and D2. Under Alternative D1, NSO would be applied to all IRAs as if under the 2001 Roadless Area Conservation Rule. Under Alternative D2, a less restrictive CSU leasing option would apply to IRAs. The CSU stipulation applied to IRAs under Alternative D2 would allow travel along existing roads within IRAs, which

may be cleared of vegetation to allow passage of equipment. However, no mechanical road construction or reconstruction would be allowed and no new temporary or permanent roads could be created.

6.5 Alternative E

Alternative E would make a majority of the Dixie National Forest available to leasing under the minimum standard lease terms and conditions contained on BLM Lease Form 3100-11 (see Appendix ROD-A). This is the least restrictive alternative in regard to oil and gas development.

Under dual analysis, Alternative E was evaluated as two separate sub-alternatives: E1 and E2. Under Alternative E1, NSO would be applied to all IRAs under the 2001 Roadless Area Conservation Rule. All resource components other than IRAs would be protected to the extent required by SLT. Alternative E2 would allow leasing in IRAs under SLT and all areas of the Dixie National Forest would be open to leasing.

7.0 CONSISTENCY WITH THE FOREST PLAN AND OTHER LAWS

7.1 Dixie National Forest Plan

In general, the Forest Plan (USFS 1986) was considered during the development of all alternatives. Under the action alternatives, the Forest Plan would be amended to reflect the stipulations needed for resource protection. Only the management unit prescriptions for oil and gas management are being amended. This decision does not affect forest-wide and management prescriptions for other resources. There is also no change to Forest Plan goals and objectives (FP pages IV-9, 7 – Minerals) or General Direction (FP IV-44) for minerals. A new Forest Plan Appendix C(b) will be provided in the decision. The new Appendix C(b) will incorporate the stipulations and maps from the selected alternative.

7.2 Other Laws

- **Endangered Species Act (ESA)**. No critical habitat for any listed terrestrial or aquatic species would be impacted with implementation of any of the alternatives. The Dixie National Forest consulted with the US Fish and Wildlife Service by submitting a Biological Assessment for this Oil and Gas Leasing EIS on November 23, 2010. After consultation and coordination with the Dixie National Forest, the USFWS concurred with the Forest's findings on January 21, 2011 of May Affect – Likely to Adversely Affect for California condor, Mexican spotted owl, and Utah prairie dog (USFWS 2011; Appendix ROD-C). The Biological Opinion includes lease notices for these species, which have been incorporated verbatim into the Final EIS and this decision to preclude or minimize adverse effects to these species and to meet the conditions of the Biological Opinion.

- **Executive Order 11988, Executive Order 11990,** and the **Clean Water Act**. Any oil and gas development activities would have to comply with the Clean Water Act. To comply with Section 404 of the Clean Water Act, the applicant must show that all wetlands in a project area were avoided or impacts minimized before a permit from the US Army Corps of Engineers can be granted for a specific project that might impact wetlands. If a permit were granted, the applicant would be required to mitigate the impacts associated with degradation of wetlands, or discharge of fill in jurisdictional wetlands. The 300-foot NSO buffer surrounding all streams, lakes, springs, wetlands, and floodplains on the Dixie National Forest, combined with *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development – The Gold Book* (BLM and USFS 2007), USFS Region 4 Oil and Gas Roading Guidelines, any Dixie National Forest BMPs in place at the time of lease approval, and supplemental guidelines contained in the *Dixie National Forest Oil and Gas Construction and Operating Standards and Well Site Design Requirements* (Appendix C of the Final EIS), would ensure compliance with the Executive Orders and the Clean Water Act.
- **Executive Order 12898**. In its outreach and scoping (public involvement) processes, the forest did not identify any potentially disproportionately high and adverse human-health or environmental effects to minority or low-income populations.
- **Executive Order 13186**. On August 1, 2007, the National Forests in Utah formalized an updated state-wide strategy for addressing migratory birds in USFS planning and project documents (USFS 2007g). A total of 124 species of migratory birds occur on the Dixie National Forest. The twenty bird species selected for this analysis were derived from a compilation of species included in the Utah Partners in Flight Conservation Strategy, the Utah Comprehensive Wildlife Conservation Strategy, and the USFWS' Birds of Conservation Concern bird lists. On December 8, 2008, the Chief of the USFS signed a national-level memorandum of understanding with the Director of USFWS (USFS 2008). The Final EIS analysis regarding migratory birds is compliant with the terms of that memorandum. Oil and gas leasing with BMPs properly implemented (see Section 2.6 of the FEIS), including appropriate surveys and mitigations (of the location) prior to disturbance, would prevent take of sensitive raptors and eagles. Take of migratory birds is to be avoided when feasible on USFS lands but some incidental, unintentional take is expected.
- **Executive Order 13112.** This Executive Order directs Federal Agencies, whose actions may affect the status of invasive species, to (1) prevent the introduction of invasive species, and (2) detect and respond rapidly to, and control, populations of such species in a cost-effective and environmentally sound manner, as appropriations allow. Weed invasions are not likely considering standard measures required by the Dixie National Forest on all projects.
- **Clean Air Act**. Any oil and gas development activities would have to comply with the Clean Air Act, the Utah air quality rules and regulations, as well as oil and gas specific EPA regulations. A discussion of the permitting requirements is located in Section 3.12.4 of the Final EIS. There are currently several new

source performance standards and national emission standards for hazardous air pollutants that are directly related to emission limits from oil and gas production facilities. In addition, it can be expected that there will be more regulations developed by EPA that control emissions from the oil and gas industry. As such, companies would have to comply with all existing and future state and Federal air quality rules and regulations in order to construct and continue operation.

- **Secretary of Agriculture Memorandum 1042-155**. The purpose of the Memorandum is to reserve to the Secretary the decision making authority over the construction and reconstruction of roads and the cutting, sale, or removal of timber in inventoried roadless areas on certain lands administered by the USFS. The memorandum affects only the process by which such activities are authorized. It does not alter or prescribe any substantive standards for the management of such areas. Any project authorized through the process established by this Memorandum must comply with any applicable laws, including, but not limited to, the National Environmental Policy Act. There are conflicting court case surrounding Federal roadless policies. The courts have simultaneously upheld and overturned the 2001 RACR. Within the 10th Circuit Court the 2001 Roadless Rule is currently enjoined. As such the decision is consistent with Department of Agriculture policy for management and decision-making in inventoried roadless areas.
- **Washington County Lands Bill**. On March 30, 2009, President Obama signed the Omnibus Public Lands Management Act of 2009. That legislation included the Washington County Growth and Conservation Act, which designated 256,338 acres of wilderness on land managed by the BLM, the Dixie National Forest, and the National Park Service. This decision does not conflict with provisions of that act, nor does it compromise its wilderness designation.

8.0 ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The CEQ regulations for implementing the NEPA require that the Record of Decision specify "the alternative or alternatives which were considered to be environmentally preferable" (40 CFR 1505.2(b)). This alternative has generally been interpreted to be the alternative that will promote the national environmental policy as expressed in NEPA's Section 101 (CEQ's "Forty Most-Asked Questions," 46 Federal Register 18026, March 23, 1981). Section 101 of the NEPA describes national environmental policy, calling on Federal, state, and local governments and the public to "create and maintain conditions under which man and nature can exist in productive harmony."

Section 101 further defines this policy in six broad goals to:

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
(2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and a variety of individual choice;
(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The goals of Section 101 are similar to those of ecosystem management in general, calling for sustainable and balanced use of natural resources while providing for future generations.

Based on the description of the alternatives considered in detail in the EIS and this Record of Decision, we believe that the selected alternative best meets the goals of Section 101 of the NEPA and is, therefore, an environmentally preferable alternative for this proposed Federal action.

9.0 ADMINISTRATIVE REVIEW

This decision is subject to administrative appeal pursuant to 36 CFR 215. Only those individuals and organizations who provided comments during the 45-day comment period (or its extension) on the Draft EIS are eligible to file an appeal. The appeal must meet the requirements at 36 CFR 215.14.

Appeals filed by regular mail or express delivery must be sent to: Appeal Deciding Officer, Intermountain Regional Office, 324 25th Street, Ogden, UT 84401. Appeals may also be hand delivered to the above address between the hours of 8:00 AM and 4:30 PM Mountain Time, Monday through Friday, excluding holidays. Appeals may also be submitted via fax at (801) 625-5277.

Electronic appeals must be submitted in rich text format (.rtf), Microsoft Word (.doc, .docx), portable document format (.pdf), or as an email message to appeals-intermtn-regional-office@fs.fed.us. Emailed appeals must include the project name in the subject line. In cases where no identifiable name is attached to an electronic message, a verification of identity will be required. A scanned signature is one way to provide verification.

Appeals, including attachments, must be filed within 45 days from the publication date of this notice in *The Spectrum*, St. George, UT. Documents received after the 45-day appeal period will not be considered. The publication date in *The Spectrum*, newspaper of record for the Dixie National Forest, is the exclusive means for calculating the time to file an appeal. **Those wishing to appeal this decision should not rely upon dates or timeframe information provided by any other source.**

10.0 IMPLEMENTATION

The decision identified in the Record of Decision shall be implemented in the following manner:

1. If no appeal is received, implementation of this decision may occur on, but not before, five business days from the close of the appeal filing period. If an appeal is received, implementation may not occur for 15 days following the date of appeal disposition.
2. In accordance with 36 CFR 228.102(d), I shall notify the BLM as to the leasing decisions that I have made.
3. In accordance with 36 CFR 228.102(e), this environmental analysis will be reviewed when specific parcels are considered for leasing, and the BLM will be authorized to offer specific lands for lease subject to:
    a. Verifying that oil and gas leasing of specific lands has been adequately addressed in this or a subsequent site-specific NEPA document and is consistent with the Forest Plan,
    b. Ensuring that conditions of surface occupancy identified in this or a subsequent site-specific NEPA document are included as stipulations in resulting leases, and
    c. Determining that operations could be allowed somewhere on each lease, except where stipulations will prohibit all surface occupancy.
4. If the lands in the parcels do not receive a bid at a sale, they will be available for non-competitive offers for a two-year period.
5. Following lease issuance, a lessee/operator may submit an Application for Permit to Drill (APD) and Surface Use Plan of Operations (SUPO). A lessee/operator may not conduct on-the-ground actions without an approved APD and SUPO. The BLM will forward the APD and the SUPO to the USFS. An environmental analysis will be conducted on the APD and SUPO proposal. The APD and SUPO decisions are not being made in this Record of Decision. The Deciding Officers of that environmental analysis may:
    a) Approve the plan as submitted,
    b) Approve the plan subject to specific conditions of approval; or
    c) Disapprove the plan with stated reasons (36 CFR 228.107).

Contact Person

For further information, contact Susan Baughman, Dixie National Forest, 1789 North Wedgewood Lane, Cedar City, UT 84721.

Robert G. MacWhorter
Forest Supervisor
Dixie National Forest

8/23/2011
Date

11.0 REFERENCES

US Department of Agriculture. Forest Service. 1986. Land and Resource Management Plan for the Dixie National Forest. Ogden, Utah.

____ 2007g. Letter from Robert G. Macwhorter (Dixie National Forest Supervisor) to Larry Crist (USFWS Field Supervisor, Utah) describing issues, strategy and process developed between USFWS and USFS to address agency responsibilities under the Migratory Bird Treaty Act. 1 August 2007.

____ 2008. Memorandum of Understanding between the US Department of Agriculture, Forest Service, and the US Fish and Wildlife Service to promote the conservation of migratory birds. FS Agreement # 08-MU-1113-2400-264.

US Department of Agriculture, Department of the Interior, and US Environmental Protection Agency (USDA et al.). 2011. Memorandum of Understanding among the USDA, USDI, and USEPA regarding air quality analyses and mitigation for federal oil and gas decisions through the National Environmental Policy Act process. Signed June 23, 2011.

US Department of the Interior. Bureau of Land Management, and US Department of Agriculture, Forest Serivce (BLM and USFS). 2006. Memorandum of Understanding between US DOI BLM and USDA FS concerning oil and gas leasing and operations. BLM MOU WO300-2006-07. Forest Service Agreement No. 06-SU-11132428-052.

____ 2007. Surface operating standards and guidelines for oil and gas exploration and development – the gold book. BLM/WO/ST-06/021+3071/REV 07. BLM. Denver, Colorado.

US Department of the Interior. Fish and Wildlife Service (USFWS). 2011. Final Biological Opinion for the oil and gas leasing project on the Dixie National Forest. Utah Field Office, West Valley City, Utah. FWS/R6 ES/UT 6-UT-11-F-001 10-F-0340. January 21, 2011.

US Department of the Interior, National Park Service (NPS), US Department of Agriculture Forest Service (USFS), and US Department of Interior Fish and Wildlife Service (USFWS). 2010. Federal land managers' air quality related values workgroup (FLAG). Phase I Report - Revised. Natural Resource Report NPS/NRPC/NRR – 2010/232.

APPENDIX ROD-A

Dixie National Forest Land and Resource Management Plan

(Forest Plan)

Amendment Number 24

This page intentially left blank.

LRMP page II-41

Remove the following paragraph on page II-41 of the LRMP:

> In summary, 1,781,779 acres are presently available for mineral leasing and 1,773,319 acres are available for mining entry. This is 95 percent and 94 percent of the forest, respectively.

Replace it with the following:

> In summary1,478,227 acres are presently available for mineral leasing on land administered by the Dixie National Forest and approximately 253,707 on land administered by the Fishlake National Forest. Mining entry is available on 1,173,319 acres.

LRMP pages IV-59, IV-62, IV-65, IV-71, IV-80, IV-101, IV-142, IV-155, IV-157:

Insert the following at the beginning of "MANAGEMENT DIRECTION" for Mineral Management: Oil, Gas and Geothermal:

1. For oil, gas and geothermal leasing on lands administered by the Fishlake National Forest and coal and geothermal leasing on lands administered by the Dixie National Forest,

LRMP Appendix C:

Remove "Leasing Matrix" from the title page.

Insert the following page immediately after the title page:

Procedure for Leasing
Leasing Matrix
Stipulations
Appendix C(a)

for the
Teasdale Ranger District
(administered by the Fishlake National Forest)

and Coal and Geothermal
on Lands Administered by the
Dixie National Forest

Insert the following immediately after page C-11:

Procedure for Leasing
Oil and Gas Leasing Matrix
Stipulation Forms
Lease Notices
Appendix C(b)

for Oil and Gas Leasing
on Lands Administered by the
Dixie National Forest

PROCEDURE FOR LEASING

The following leasing matrix provides the appropriate lease stipulations and lease notices that would be attached to each lease for each resource on National Forest System lands administered by the Dixie National Forest. The No Surface Occupancy (NSO), Timing Limitation (TL), Controlled Surface Use (CSU), and Lease Notices (LN) serve to mitigate potential effects of oil and gas activities. The lessee must accept these stipulations as conditions of purchasing the lease. These stipulations represent Forest Service decisions regarding the best means of avoiding or minimizing environmental impacts that may arise from the project while meeting the integrated resource management requirements of the Forest Plan. Dixie National Forest Oil and Gas Construction and Operating Standards and Well Site Design Requirements provides a listing of regulations and guidance to future operations.

Additional site-specific analysis will continue at the Application Permit to Drill (APD) stage subject to 36 CFR 220.108, authorization of occupancy within a leasehold. Should issues or resources be identified at those times that warrant additional protection, we will take full advantage of provisions included in the lease and stipulations and work with the lessee to protect forest resources. This will include prudent use of a provision in the Standard Lease Terms (SLT) applicable in all leases which allows the surface management agency to require movement of proposed facilities up to 200 meters to avoid negatively affecting resources.

Any request for consideration of requests for waiver, modification or exception (WEM) of lease stipulations would be subject to regulation at 36 CFR 228.104 which addresses how the Forest Service will consider a request for a WEM when submitted in association with an APD. In addition the Forest Service would be required to address requests for WEM of lease stipulations as part of our analysis of the Surface Use Plan of Operations portion of the APD.

Oil and Gas Leasing Matrix

Lands Administered by the Dixie National Forest

Leasing Stipulations by Resource Component

Resource Component	Leasing Stipulation
Visual Resources	
Retention/SIO Very High (Overlaps with Wilderness)	NSO-01
Retention/SIO High	NSO-02
Partial Retention/SIO Moderate	CSU-02
Modification/SIO Low	SLT
SIO Unassigned	CSU-03
NPS Protection	NSO-29
Roadless/Wild and Scenic Rivers	
Inventoried Roadless Areas	NSO-03
Suitable Wild and Scenic Rivers	CSU-05
Recreation	
Designated Dispersed Areas	CSU-06
Developed Sites (with appropriate buffer): Recreation Sites, Camp Grounds, Guard Stations, etc.	NSO-05
Recreation Residences (with 0.25-mile buffer)	NSO-06
Administrative Sites	NSO-05
ROS: Primitive	NSO-07
ROS: Semi-Primitive Non-Motorized	NSO-08
ROS: Semi-Primitive Motorized	CSU-08
ROS: Roaded Natural	CSU-08
Fish and Wildlife	
Sage Grouse Leks	NSO-09 2.0-mile buffer[3]
Sage Grouse Summer, Nesting, and Brood Rearing Habitat	CSU-09
Crucial and Substantial Deer and Elk Winter Range	CSU-10
Crucial Deer and Elk Summer Range	TL-03 May 15–Jul 5
Active Raptor Nests[2]	CSU-11
Goshawk Nest Areas	NSO-11 0.5-mile buffer
Goshawk Post Fledging Areas (PFA)	CSU13
Mexican Spotted Owl Protected Activity Centers (PAC)	NSO-12 LN
Designated Critical Mexican Spotted Owl Habitat	LN
Potential Mexican Spotted Owl Habitat (40% slope and mixed conifers)	CSU-15
Utah Prairie Dog Colonies (with 0.5-mile buffer from colony edge)	NSO-13 LN
Migratory Birds	CSU-16

Resource Component	Leasing Stipulation
	LN
Bald Eagle Winter Concentration Areas	NSO-14
Bald Eagle Nests (with 0.5-mile buffer)[1]	LN
Peregrine Falcon Nests (with 1-mile buffer)	NSO-15
Peregrine Falcon Rim Habitat	CSU-19
California Condor (Experimental/Nonessential) Rim Habitat	CSU-19
California Condor (Endangered) Rim Habitat and Nest/Roost Area	LN
Threatened, Endangered, and Candidate Species and Suitable Habitat[2]	LN
Forest Service Sensitive Species and Suitable Habitat[2]; Including Pygmy Rabbit, Flammulated Owl, Three-toed Woodpecker, Sensitive Bats, Boreal Toad, Bighorn Sheep	CSU-20
Fisheries Habitat (Occupied and Suitable)	NSO-17 500-foot buffer
Water and Watershed Resources	
Streams, Lakes, Springs, Wetlands, Floodplains, and Riparian Areas (including riparian vegetation)	NSO-20 300 ft buffer LN
Municipal Watersheds	NSO-21
Groundwater Protection Zones 2-4	LN
Existing Transient Non-Community Water Systems – T2 and T4	LN
Surface Water Protection Zones	LN
Sole Source Aquifers	LN
Soils and Geologic Hazards	
Active Rockfall, Landslide Areas (Rockfall/unstable)	NSO-22
Slopes > 35 percent	NSO-23
Areas of High Erosion Potential	NSO-23
Marginally Unstable Slopes	CSU-25
Cave Resources[1]	CSU-26 LN
Vegetation	
Botanical and Geological Areas	NSO-25
Side Hollow Ponderosa Pine Provenance Study	NSO-26
Sensitive Plant Species and Suitable Plant Habitat[2]	CSU-27 LN
Cultural	
Mountain Meadows Massacre Site National Historic Landmark	NSO-28a
Mountain Meadows Historic District	CSU-28 LN
Long Hollow Historic District	CSU-28 LN
Boulder Area/Cedar Mtn and concentrated sites	LN
Air	
Class I airsheds (60 km buffer)	CSU-29
All areas	LN

[1] GIS data not available.

[2] GIS data partially available.

[3] Sage-grouse 2-mile lek buffer includes all areas within a1-mile radius and only sagebrush habitat from 1- to 2-mile radius.

NO SURFACE OCCUPANCY STIPULATION
NSO-01
Very High Scenic Integrity Objective Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within all lands designated as having a very high scenic integrity objective as shown on Figure 3.2-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Preserving the existing very high scenic integrity objectives of these areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104) if the operator can demonstrate in a surface use plan of operations that the objectives for scenery can be met.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-02
High Scenic Integrity Objective Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within all lands designated as having a high scenic integrity objective as shown on Figure 3.2-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Preserving the high scenic integrity of these areas. These areas are managed as high scenic value because of their natural landscape variety and features in proximity to primary travel routes or use areas where users have a major concern for the aesthetics of the viewed landscape. Management activities should repeat form, line, color, and texture that are frequently found in the characteristic landscape. Changes should not be evident to the casual forest visitor, and all retention activities to restore the area to a naturally appearing condition should be accomplished either during the operation or immediately thereafter.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104) if the operator can demonstrate in a surface use plan of operations that the objectives for scenery can be met.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-03
Inventoried Roadless Areas (IRAs)

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

All areas identified and mapped as Inventoried Roadless Areas and contained in Forest Service Roadless Area Conservation, Final Environmental Impact Statement, Volume 2, dated November 2000, as shown in Figure 3.3-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities. No timber cutting is permitted

For the purpose of:
Protecting the roadless and wilderness characteristics, as well as undeveloped values of these lands.
.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-05
Developed Sites and Administrative Sites

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Developed sites and Administrative sites developed and managed for specific purposes such as recreation, administration, and other. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Preventing conflicts with the uses for which the sites were developed and are managed and to protect the capital investment and recreation uses associated with permitted recreation residences.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-06
Recreation Residences

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within ¼ mile of recreation residences shown in Figure 3.4-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Preventing conflicts with the recreation uses of these areas including visual and auditory effects.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-07
Primitive Recreation Opportunity Spectrum Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Primitive Recreation Opportunity Spectrum (ROS) Areas as shown in Figure 3.4-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Preventing conflicts with the Primitive recreation opportunities provided by these areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-08
Semi-Primitive Non-Motorized Recreation Opportunity Spectrum Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Semi-primitive, non-motorized areas as shown in Figure 3.4-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Preventing conflicts with semi-primitive non-motorized recreation opportunities provided by these areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-09
Sage Grouse Leks

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

As shown on Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*, within 1 mile of sage-grouse leks (all habitats), and between 1 and 2 miles of sage-grouse leks within sagebrush habitat only.

This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities.

Seismic activities, including blasting, would be limited during the lekking period: March 1 – May 15.

For the purpose of:

Protecting breeding and brood rearing sage grouse from predation, displacement, habitat fragmentation, and disturbance. Preventing any loss of viability to sage grouse populations.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-11
Goshawk Nest Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within 0.5 mile of active or occupied goshawk nests.
Prior to any surface disturbing activities in known or suspected nesting areas a two-year survey protocol would need to be completed between March 1 and September 30. If an occupied nest is found, no surface disturbing activities may take place within 0.5 mile of the nest(s). Known goshawk nest areas are confidential and are not shown on any of the maps in the EIS.

Exceptions to this stipulation (i.e., a smaller buffer) can be made if topographic barriers or vegetation screening can be utilized to protect the nest site as determined by the Dixie National Forest.

For the purpose of:

Avoiding any loss of viability to goshawk populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-12
Mexican Spotted Owl Protected Activity Centers (PACs)

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Mexican spotted owl Protected Activity Centers shown in Figure 3.6-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities.

For the purpose of:

Protecting habitat areas for Mexican spotted owl that are not fully protected by the Endangered Species Act, which include all non-Critical Habitat areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-13
Utah Prairie Dog Colonies

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within 0.5 mile of Utah prairie dog colonies. This prohibition includes all facilities such as drill pads, roads, pipelines, powerlines, etc. The locations of Utah prairie dog colonies are confidential and are not shown on any of the maps in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Avoiding any loss of viability to Utah prairie dog populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-14
Bald Eagle Winter Concentration Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Bald eagle winter concentration areas as shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities. The USFS will not approve any ground disturbing activity until its obligations are met under applicable requirements of the Bald and Golden Eagle Protection Act, 16 U.S.C. 668-668c.

For the purpose of:

Avoiding a loss of viability to bald eagle populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-15
Peregrine Falcon Nests

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within one mile of peregrine falcon nests. This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities.

Prior to any surface disturbing activity such as construction and drilling, in areas where peregrine falcon nests are known to occur, surveys would need to be completed. If active or occupied nests are found, construction and drilling activities would not be allowed within one mile of the nest.

Exceptions to this stipulation (i.e., a smaller buffer) can be made if topographic barriers or vegetation screening can be utilized to protect the nest site as determined by the Dixie National Forest.

For the purpose of:

Avoiding any loss of viability to peregrine falcon populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-17
Fisheries Habitat

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within a 500-foot buffer zone from the high waterline of streams/lakes with occupied or suitable sensitive fisheries habitat shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

"Suitable" habitats are all areas currently identified by Conservation Teams, UDWR, and/or the Forest as having the potential for reintroductions within the next ten years.

This stipulation applies to all surface disturbing activities, such as roads, pads, powerlines, and pipelines. This stipulation does not allow for perpendicular crossings such as needed for roads, pipelines, and power lines.

For the purpose of:
Avoiding a loss of viability to sensitive fish populations on the Dixie National Forest and to maintain quality habitat to contribute toward maintenance and/or recovery of sensitive fish species.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-20
Streams, Lakes, Springs, Wetlands, and Riparian Areas – 300-foot Buffer

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

All areas within 300-foot buffer of the high water point of all perennial streams, lakes, springs, wetlands, and riparian areas. 100-year floodplains are not included in this stipulation.

This stipulation applies to all surface disturbing activities, such as roads, pads, powerlines, and pipelines, but allows for perpendicular or near-perpendicular crossings such a needed for linear features like roads, pipelines, and powerlines as long as they are designed to minimize effects.

For the purpose of:
Reducing the contributions of sediments to watercourses, and minimizing the potential for spills or leaks to contribute pollutants to streams or other water features. This stipulation provides restrictions greater than in 36 CFR 228.108(j) under Standard Lease Terms due to the specific prohibition of surface occupancy within the buffer zone.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-21
Municipal Watersheds

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Municipal watersheds shown in Figures 3.7-1 through 3.7-4 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities.

For the purpose of:
Preventing any effects to water flow and quality of municipal watersheds and associated water sources.

Preventing pollution and protecting the quality of drinking water.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-22
Active Rockfall, Landslide, and Unstable Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Active rockfall and landslide areas and unstable areas shown in Figure 3.8-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This stipulation applies to all surface disturbing activities such as well pads, roads, pipelines, and powerlines.

Exceptions to this stipulation can be considered if a survey is conducted by a qualified geologist/engineer and it is demonstrated to the responsible Forest Officer that operations can be located in stable areas or can be designed to prevent causing landslides and damage from natural soil creep and landslides.

For the purpose of:
Ensuring that proposed activities/facilities do not cause landslides and to prevent facilities from being damaged by landslides, rockfalls, soil creep, or avalanches which could result in hazardous conditions and spills or releases of potentially contaminating materials.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-23
High Erosion Potential Areas and Steep Slopes (greater than 35 percent)

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Areas with highly erosive soils and slopes greater than 35 percent shown in Figure 3.8-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. Not all areas are mapped and there are variable conditions within the areas shown on the map. The applicability of this stipulation to individual locations would be determined based on actual on-ground conditions. This stipulation includes all surface disturbing activities such as well pads, roads, powerlines, and pipelines.

Exceptions to this stipulation can be considered if a survey is conducted by a qualified geologist/soil scientist and it is demonstrated to the responsible Forest Officer that operations can be located in stable areas or can be designed and constructed to prevent causing excessive soil loss, landslides, or damage from natural soil creep and landslides.

For the purpose of:
Preventing excessive soil erosion and loss of productivity.
Avoiding soil damage and creating unstable/hazardous conditions.
Avoid high risk of damage to facilities from natural soil movement and landslides.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-25
Botanical and Geological Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Botanical and geological areas shown in Figure 3.9-2 (i.e., the Red Canyon Botanical Area and Side Hollow Ponderosa Pine Study Area) in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities.

For the purpose of:
Preventing alternation of the uncommon, special, or natural attributes of these areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-26
Side Hollow Ponderosa Pine Provenance Study Area

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Side Hollow Ponderosa Pine Provenance Study Area shown in Figure 3.9-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*. This prohibition includes all surface disturbing activities such as roads, well pads, and other facilities.

For the purpose of:
Preventing any alternation to the natural conditions of this area that is being used in a genetic study of ponderosa pine communities.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-28a
Mountain Meadows Massacre Site National Historic Landmark

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

All land parcels designated on June 23, 2011 as Mountain Meadows Massacre Site National Historic Landmark administered by the Dixie National Forest. This prohibition includes all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities. No timber cutting is permitted.

For the purpose of:
Meeting the objectives of the National Historic Landmark Program.

Protecting and preserving the visual integrity so as to convey the historic character of the property as designated through retention of physical features that were present at the time of the event.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
NSO-29
Areas in Proximity to Bryce Canyon National Park

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Areas in proximity to Bryce Canyon National Park (1,925 acres). No surface occupancy is permitted including all surface disturbing activities including, but not limited to, drill pads, roads, powerlines, pipelines, and other facilities.

For the purpose of:

Protecting the dark/night sky values, scenic vistas, solitude, and soundscapes for areas adjacent to Bryce Canyon National Park. Also to prevent conflicts with the National Park resource values named above and others such as recreation (egress) and vegetation (invasive species).

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-02
Moderate Scenic Integrity Objective Areas

Surface occupancy or use is subject to the following special operating constraints.

Proposed oil and gas activity must be located to minimize intrusive sights and sounds from facilities and roads. Proposed facilities will be individually located on a case-by-case basis (within up to 0.25 mile of the original site) to take advantage of vegetative or topographic screening. Oil and gas-related features may make the landscape appear slightly altered, but should be visually subordinate to the overall landscape.

On the lands described below:

Within all lands designated as having a moderate scenic integrity objective as shown on Figure 3.2-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Maintain disturbances as visually subordinate in such a manner as the landscape character appears intact. Meet the scenic integrity objectives of these areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-03
Unassigned Scenic Integrity Objective Areas

Surface occupancy or use is subject to the following special operating constraints.

Proposed oil and gas activity must be located to minimize intrusive sights and sounds from facilities and roads. Proposed facilities will be individually located on a case-by-case basis (within up to 0.25 mile of the original site) to take advantage of vegetative or topographic screening. A visual analysis will be completed for areas of unassigned SIO and the appropriate Scenic Integrety Objective will be determined when when a specific project is proposed.

On the lands described below:

Within all lands designated as having “unassigned” scenic integrity objective as shown on Figure 3.2-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Protecting the scenic integrity of these areas. These areas will require a scenic integrity evaluation prior to any proposed disturbance in accordance with the Scenery Management System Amendment to the Dixie National Forest Land and Resource Management Plan (April 2000).

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-05
Protection of Suitable Wild and Scenic Rivers
(Ref. FSM 2820)

Surface occupancy or use is subject to the following special operating constraints (relative to potential Wild and Scenic Rivers classification).

Proposed operations must be located or designed to maintain and protect the free-flowing character and the outstandingly remarkable values of the identified river. No new temporary roads, permanent roads, road construction or reconstruction may occur to protect the elgibility of these streams to be classified as wild. In addition, no power transmission lines or pipelines (i.e., oil, gas, water) may be constructed in accordance with direction in FSH 1909.12 Chapter 80.

On the lands described below:

Lands within one quarter mile of either bank of the suitable stream segments of the North Fork of the Virgin River, Mamie Creek, and Pine Creek. The location of these streams is shown in Figure 3.3-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Protection of streams to allow for suitability in the National Wild and Scenic River System as directed in FSH 1909.12 Chapter 80. To protect the free-flowing character and outstanding remarkable values of identified rivers.

A request for a waiver, exemption, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104). The objective and justification for the above stipulation, along with guidance on when a WEM would potentially be considered, are described in Section 1.8.5.9.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

CONTROLLED SURFACE USE STIPULATION
CSU-06
Developed Sites, Administrative Sites, and
Designated Dispersed Recreation Sites

Surface occupancy or use is subject to the following special operating constraints.

Proposed oil and gas activity must be located to minimize intrusive sights and sounds from facilities and roads. Proposed facilities will be individually located on a case-by-case basis (within up to 0.25 mile of the original site) to take advantage of vegetative or topographic screening. Development and activity would be limited to a level that facilitates the dispersed recreation experience. Measures applied would include requiring noise reduction technologies and limiting operation and maintenance use on roads during holidays and high use periods.

On the lands described below:

Those areas established as Developed Recreation sites, Forest Service Administrative sites and those areas of Dixie National Forest which have been designated as dispersed camping areas. The areas mapped are shown in Figure 3.4-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

To preclude surface occupancy and new surface disturbance within developed sites, recreation residences, administrative sites and designated dispersed recreation sites.

Minimizing conflicts with Developed Sites, Administrative Sites, and Dispersed Recreation Sites (most are 100-200 acres) and the associated recreation opportunities provided by these sites, including the visual and auditory environments.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-08
Semi-Primitive Motorized and Roaded Natural Areas
As defined by USFS Recreation Opportunity Spectrum

Surface occupancy or use is subject to the following special operating constraints.

Proposed oil and gas activity must be located to minimize intrusive sights and sounds from facilities and roads. Proposed facilities will be individually located on a case-by-case basis (within 0.25 mile of the original proposed site) to take advantage of vegetative or topographic screening.

On the lands described below:

Recreation Opportunity Spectrum: Semi-Primitive Motorized areas and Roaded Natural Areas as shown on Figure 3.4-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Minimizing conflicts with the semi-primitive motorized and roaded natural characteristics.

Minimizing intrusive sights and sounds from facilities and roads.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-09
Sage Grouse Brood Rearing Habitat

Surface occupancy or use is subject to the following special operating constraints.

No activities would be allowed from May 1 to July 15. Outside these dates, surface disturbance for oil and gas operations is limited to no more than 1 percent of total habitat (1% = 130 acres), including the areas of avoidance due to human activity (i.e., roads and well pads) with radius/buffer to be determined by the Dixie National Forest. Reclaimed oil and gas disturbance which has met reclamation requirements is not included in the disturbed/avoidance area calculation.

On the lands described below:

Sage grouse brood-rearing habitat. The habitat area for which this stipulation applies is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

To avoid a substantial loss of sage grouse brooding habitat and to ensure brood rearing success.

To avoid a loss of viability to sage grouse populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

TIMING LIMITATION STIPULATION
TL-03
Deer and Elk Summer Range – Crucial and Substantial

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

May 15 to July 5. These dates may be adjusted by up to 14 days at each end of this period without a waiver, modification, or exception to this stipulation depending on local expertise (wildlife biologists).

Exceptions to this stipulation can be made if it is determined that the range is not being used by big game due to seasonal variations or other conditions.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-4 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

To prevent high-intensity oil and gas activities (i.e., construction and drilling) in crucial and substantial summer range during the primary season of use, which would otherwise decrease habitat capability.

To minimize the potential that deer and elk would avoid the area and thus minimize the potential that those population objectives for UDWR hunt units on the Dixie National Forest would not be met.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-10
Deer and Elk Winter Range – Crucial and Substantial

Surface occupancy or use is subject to the following special operating constraints.

Surface disturbance for oil and gas operations is limited to no more than 1 percent of the total crucial and substantial deer and elk winter range in each ranger district. This restriction only applies to disturbed areas associated with oil and gas exploration and development and excludes reclaimed oil and gas sites where reclamation requirements have been met.

For production operations during the wintering season of use (December 1 – April 15), the operator must make all efforts to minimize maintenance activities and the number of trips to the site to those essential for assuring production and site integrity. Well maintenance should be planned in advance to avoid the need for workover rig operations during the restricted period.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-4 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Avoiding substantial loss of big game winter range.

To minimize the potential that deer and elk would avoid the area due to human presence and noise, and thus minimize the potential that population objectives for UDWR hunt units on the Dixie National Forest would not be met.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-11
Active Raptor Nests

Surface occupancy or use is subject to the following special operating constraints.

Raptor nest surveys are required in potentially suitable habitats for all raptors, including Threatened, Endangered, Sensitive and MIS species prior to the approval of surface disturbing activities at a specific location.

If active or occupied raptor nests are located, high intensity activities such as construction and drilling will be restricted surrounding the nest(s) within an influence zone. Influence zones and duration of restrictions would depend on the raptor species of concern as determined in the guidelines set forth by the US Fish and Wildlife Service for Utah species. Influence zones are line-of-sight to specified distances. If topography or vegetation provides adequate screening needed to maintain nest viability, the distance may be reduced (to be determined by the Dixie National Forest).

On the lands described below:

All areas with suitable raptor nesting habitat (e.g., cliffs, forested areas) for raptors within 0.5 mile of proposed operations, or 1.0 mile of proposed operations if peregrine falcon or bald eagle nests are suspected.

For the purpose of:

Protecting nesting raptors by maintaining solitude and ambient noise levels during the nesting season.

To provide protections to golden eagles beyond the Bald and Golden Eagle Protection Act by avoiding injury or mortality to nestlings and adults (take) through spatial and seasonal buffers.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-13
Goshawk Post Fledgling Areas (PFA)

Surface occupancy or use is subject to the following special operating constraints.

Prior to any surface disturbing activity in a goshawk PFA, a two-year protocol survey would be required and would need to be completed between March 1 and September 30. If any occupied or active nests are found within the PFA, high intensity oil and gas activities such as construction and drilling may be restricted in the area of the PFA from 1 March to 30 September or until birds have fledged as determined by District Wildlife Staff.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Providing for goshawk fledgling survivorship by maintaining solitude and ambient noise levels during the fledgling period within the PFA.

To avoid a loss of viability to goshawk populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-15
Potential Mexican Spotted Owl Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any surface disturbing activity in areas mapped as potentially suitable habitat, a site validation visit would need to be completed within 0.5 miles of proposed project activities.

If habitat is determined to be suitable, surveys would be conducted between March 1 and August 31 in accordance with Forest service protocol. If the habitat is occupied by Mexican spotted owls, construction and drilling activities will be limited within one half mile of the nest between March 1 and August 31 if surveys determine that proposed activities may have an adverse effect on nesting site capability.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-1 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

To protect nesting habitat for Mexican spotted owl that are not fully protected by the Endangered Species Act, which include all non-Critical Habitat areas.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-16
Migratory Birds

Surface occupancy or use is subject to the following special operating constraints.

Surveys for migratory birds are required in all suitable habitats on the Dixie National Forest with particular emphasis placed on the following species:

Partners in Flight Priority Species

USFWS Birds of Conservation Concern

Survey must be conducted between 1 March - 1 September, dependant on species and habitat type. If nests for the above species are found in the vicinity of proposed operations, high intensity activities such as construction and drilling may be restricted surrounding a migratory bird nest for the duration of the species' nesting season or until birds fledge from the nest. Influence zones and duration of restrictions would depend on the bird species and number and location of nests.

On the lands described below:

All areas with suitable habitat for migratory birds (e.g., forested areas, shrub steppe, grassland) within the zone of influence for oil and gas operations.

For the purpose of:

Providing additional protections to migratory birds beyond the requirements of the Migratory Bird Treaty Act on National Forest lands, which state that management should conserve migratory bird populations and habitats. This stipulation would provide some protection to individual nests of certain migratory bird species.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-19
California Condor (Experimental/Nonessential Population) and Peregrine Falcon Rim Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any surface disturbing activities in rim habitat on the Dixie National Forest, surveys would need to be completed in accordance with Forest Service protocol. If active or occupied territories are located, surface disturbing activities may be limited between February 1 and August 31 within one mile of the territory if it is determined that proposed activities may have an adverse effect on nesting site capability.

If California condors are located on the Pine Valley Ranger District, Endangered Species Act guidance must be followed (see Lease Notice). If California condors are located on the Cedar City, Powell, or Escalante Ranger Districts, Endangered Species Act guidance for experimental/nonessential population must be followed.

On the lands described below:

The habitat described as potential rim habitat for California condor and peregrine falcon is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:
Protecting habitat areas for California condor that are not fully protected under the Endangered Species Act, which include all non-Critical Habitat areas.

To protect peregrine falcon habitat and avoid a loss of viability to peregrine populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-20A
Sensitive Bat Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any oil and gas activities within 0.25 miles of a cave, bat surveys would need to be completed between October 1 and May 1 in accordance with USFS protocol. If winter hibernacula (winter roost sites) are located, high intensity activities such as construction and drilling may be restricted from October 1 to May 1 within a 0.25-mile buffer around cave entrances.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Avoiding a loss of viability to sensitive bat populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-20B
Pygmy Rabbit Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any oil and gas activities within suitable habitat for pygmy rabbit, surveys would need to be completed. If colonies are located, high intensity activities such as construction and drilling will be restricted year-round within a 100-meter buffer around the estimated center of the colony.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Avoiding a loss of viability to pygmy rabbit populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-20C
Flammulated Owl Habitat

Surface occupancy or use is subject to the following special operating constraints.

If any oil and gas activity is requested within suitable habitat for flammulated owl, surveys would need to be completed before oil and gas activities can occur in the area. If owls are detected or nests located, any high intensity activity such as construction and drilling may be restricted within a one half mile buffer around the estimated center of the territory from April 1 to September 30.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Avoiding a loss of viability to flammulated owl populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-20D
Boreal Toad Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any oil and gas activities within suitable boreal toad habitat (see Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*), surveys would need to be completed. If boreal toads are located, high intensity activities such as construction and drilling will be restricted within the habitat between April 1 and July 31.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-2 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Avoiding a loss of viability to boreal toad populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-20E
Bighorn Sheep Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any oil and gas activities within suitable bighorn sheep habitat, surveys for bighorn sheep would be completed. If bighorn sheep are located, high intensity activities such as construction and drilling may be restricted within the habitat if such activities would impact the viability of bighorn sheep populations.

On the lands described below:

Suitable habitat areas for bighorn sheep.

For the purpose of:

Avoiding a loss of viability to bighorn sheep populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-20F
Three-toed woodpecker habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to any oil and gas activities within suitable three-toed woodpecker habitat, surveys would be completed. If three-toed woodpeckers are located, high intensity activities such as construction and drilling may be restricted within the habitat if such activities would impact the viability of three-toed woodpecker populations.

On the lands described below:

Suitable habitat for three-toed woodpeckers.

For the purpose of:

Avoiding a loss of viability to three-toed woodpecker populations on the Dixie National Forest.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-25
Marginally Unstable Slopes

Surface occupancy or use is subject to the following special operating constraints:

A survey must conducted by a qualified geologist/engineer to determine if the areas proposed for surface disturbing operations are stable enough to accommodate the proposed facilities. The operator must demonstrated to the responsible Forest officer that operations can be located in stable areas or can be designed to prevent causing landslides and damage from natural soil creep and landslides

On the lands described below:

Areas identified on Figure 3.8-1 as having marginally unstable slopes, in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Protecting soil and water resources from excessive impacts that could result from damage to facilities from land/soil movement and failures.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-26
Lava Tubes and Limestone (Karst) Cave Areas

Surface occupancy or use is subject to the following special operating constraints:
In areas with known or suspected caves, lava tubes, and karst features, surveys will be required to determine if they occur within or adjacent to the proposed project area. Surface disturbance will not be allowed within 300 meters of cave entrances, passages, or aspects of significant caves, lava tubes, or significant karst features. Waiver of this requirement will be considered when an approved plan of operations ensures the protection of lava or karst cave resources.

All casing and cementing programs must be designed to allow for a karst protection string and all strings of casing must be cemented to the surface. Upon abandonment of the well the wellbore will be cemented from the base of the cave/karst zone to the surface.

On the lands described below:
Areas identified as having potential to have lava tube or limestone cave resources below the surface. Most cave resources potential is in the Cedar City Ranger District; some areas have been mapped.

Cave resources are defined as any naturally formed void, cavity, recess, natural pit, sinkhole, or other feature that is large enough to permit a person to enter, whether or not the entrance is naturally formed or human-made. The term includes any extension or component of a cave or system of interconnected cave passages that occur beneath the surface of the earth or within a cliff or ledge, and/or natural subsurface water and drainage systems. Cave resources include any material or substance occurring naturally in caves, such as animal life, plant life, paleontological deposits, sediments, minerals, speleogens (relief features on the walls, ceiling, and floor of any cave that are part of the surrounding bedrock), and speleothems (any natural mineral formation or deposit occurring in a cave) is considered a Cave Resource.

For the purpose of:
Protecting Lava Caves and Karst Features and associated groundwater and spring resources. A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-27
Sensitive Plants and Suitable Habitat

Surface occupancy or use is subject to the following special operating constraints.

Prior to conducting any surface disturbing activities within suitable habitat for sensitive plants, surveys would need to be completed. If sensitive plants are found, ground disturbing activities may be restricted within a 300-meter buffer around plant populations that are essential to the persistence of the species on the Dixie National Forest.

On the lands described below:

The habitat area for which this stipulation applies is shown in Figure 3.6-3 in the *Final Environmental Impact Statement for Oil and Gas Leasing on Lands Administered by the Dixie National Forest*, *August 2011*.

For the purpose of:

Locating and designing operations so as to not adversely affect viability of plant species so as to maintain viable populations of sensitive plant species on the Dixie National Forest.

To provide more protections (i.e., a buffer) that can be used to avoid individuals, populations, or clusters of sensitive plant species.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE
CSU-28
Mountain Meadows Historic District
Long Hollow Historic District

Surface occupancy or use is subject to the following special operating constraints:

No new temporary or permanent roads, mechanical road construction or reconstruction (as defined in 36 CFR 294.11) may occur within the lands described below. This applies to all linear disturbance regardless of classification as "roads" or "construction zones." Travel may occur along existing roads. Proposed oil and gas activity must be located so as to minimize intrusive sights and sounds to the eligible National Register Districts. The USFS will not approve any ground disturbing activity that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The USFS may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated. Oil and gas activities may need to be located outside the boundary of the areas listed on the National Regiter of Historic Sites.

On the lands described below:
Site listed as eligible on the National Register of Historic Places:
Mountain Meadows Historic District
Long Hollow Historic District

For the purpose of:
Protecting eligibility of site on the National Register of Historic Places.

Preventing effects to the historic significance, nature, and quality of these areas.
To minimize impacts to cultural and historic resources from surface disturbance associated with oil and gas activities.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION
CSU-29
Protection of Class I Airsheds

Surface occupancy or use is subject to the following special operating constraints
(Relative to protection of air resources).

Proposed operations must be located and/or designed to not cause or contribute to adverse impacts to air quality related values in Class I airsheds as determined by the potentially impacted agency. Operators will be expected to use appropriate Best Available Control Technology (BACT) to reduce impacts to air quality and air quality related values by reducing emissions from field production and operations. The future development of the lease parcels may be subject to appropriate mitigation and conditions of approval (COAs) to reduce or mitigate air resource impacts.

To ensure this, within 60km of any Class I airshed an air impact analysis would be required prior to any field development. Analysis must demonstrate that proposed operations and associated mitigating measures will not cause or contribute to adverse impacts to air quality related values as determined by the potentially impacted agency and as outlined in the most recent FLAG guidance.

Typical design and mitigation measures may include: use of Tier IV or better engines, use of low sulfur fuels, electrification of well fields, flaring hydrocarbon and gases at high temperatures in order to reduce emissions of incomplete combustion; water dirt roads during periods of high use in order to reduce fugitive dust emissions; require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; minimize roads and re-vegetate areas of the pad not required for production facilities to reduce the amount of dust from the pads.

On the lands described below:
All lands in leasehold within 60 km of the Class I areas.

For the purpose of:
Protection of air resources in and around Class I areas to meet or exceed FLAG guidelines.

A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, See BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Lease Notices for Oil and Gas Development on Lands of the Dixie National Forest

Under Jurisdiction of
Department of Agriculture

In conducting operations associated with this lease, the lessee/operator must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use, occupancy, and management of National Forest System (NFS) lands when not inconsistent with existing lease rights granted by the Secretary of Interior.

All matters related to this notice are to be addressed to:

Forest Supervisor
Dixie National Forest
1789 Wedgewood Lane
Cedar City, Utah 84721
Telephone: ***435 865-3700***

who is the authorized representative of the Secretary of Agriculture.

MIGRATORY BIRDS (Migratory Bird Treaty Act of 1918, as amended by P.L. 86-732; P.L. 90-578; P.L. 91-135; P.L. 93-300; P.L. 95-616; P.L. 99-645; and P.L. 105-312)

The Forest Service is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any migratory birds, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Migratory Bird Treaty Act of 1918 by detrimentally affecting these species or their habitats.

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

BALD AND GOLDEN EAGLE NESTS (Bald and Golden Eagle Protection Act of 1940, as amended by P.L 86-70; P.L. 87-884; P.L. 92-535; and P.L. 95-616)

The Forest Service is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any bald eagles or golden eagles, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Bald and Golden Eagle Protection Act of 1940 by detrimentally affecting these species or their habitats.

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

THREATENED OR ENDANGERED SPECIES (The Endangered Species Act. (ESA), P.L. 93-205 (1973), P.L. 94-359 (1974), P.L. 95-212 (1977), P.L. 95-632 (1978), P.L. 96-159 (1979), P.L. 97-304 (1982), P.L. 100-653 (1988)).

The lessee/operator is given notice that lands in the lease area have been identified as containing potential habitat for plant and animal species listed on the USFS Intermountain Region Sensitive Species List and/or Utah Sensitive Species List (i.e., sensitive species), and that no surface use or otherwise disruptive activity would be allowed that would result in impacts to individuals or populations of these sensitive species that would result in a trend toward listing of these species under the Endangered Species Act.

Lessee will be required to survey potentially affected habitat using scientific methods approved by the USFS. If such habitat is occupied and the species may be adversely affected by exploration and/or production operations, modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, National Forest Management Act, Endangered Species Act, Migratory Bird Treaty Act, and 43 CFR 3101.1-2.

If the USFS determines sensitive species may affected by fluid mineral operations, the lessee will be required to develop and implement a monitoring plan prior to and during operations. This monitoring plan will apply widely-accepted scientific methods approved by the USFS, and results of monitoring will be reported to the USFS at least annually. If unanticipated types or levels of adverse affects are observed during monitoring, the USFS will be promptly notified and conservation measures identified by the USFS will be implemented by the lessee.

(Forest Service Manual 2672.4 and BLM Manual 6840 require surveys for and management activities to be managed to prevent a trend toward federal listing of species. FS policy addresses species identified by the Regional Forester as sensitive species; Utah BLM adopts the UDWR Sensitive species).

The Forest Service is responsible for ensuring that the leased land is examined through the biological assessment process prior to undertaking any surface disturbing activities, to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened or their habitats. The finding of this biological assessment may result in some restrictions to the operators plans or even disallow use and occupancy that would be in violation of the 1973 Endangered Species Act (as

amended), by detrimentally affecting endangered species or their habitats.

In order to further protect threatened and endangered species on the Dixie National Forest, the following lease notices will be attached to each lease where applicable:

LEASE NOTICE - Utah Prairie Dog:

The lessee/operator is given notice that lands in this lease may contain historic and/or occupied Utah prairie dog habitat, a threatened species under the Endangered Species Act. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs when prairie dogs are active or hibernating. A temporary action is completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one activity/hibernation season and/or causes a loss of Utah prairie dog habitat or displaces prairie dogs through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage.

Current avoidance and minimization measures include the following:

1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s).
2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.
3. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in prairie dog habitat.
4. Surface occupancy or other surface disturbing activity will be avoided within 0.5 mile of active prairie dog colonies.
5. Permanent surface disturbance or facilities will be avoided within 0.5 mile of potentially suitable, unoccupied prairie dog habitat, identified and mapped by Utah Division of Wildlife Resources.
6. The lessee/operator should consider if fencing infrastructure on well pad, e.g., drill pads, tank batteries, and compressors, would be needed to protect equipment from burrowing activities. In addition, the operator should consider if future surface disturbing activities would be required at the site.
7. Within occupied habitat, set a 5 mph speed limit on operator-created access roads and adhere to speed limits on maintained roads.
8. Limit disturbances to and within suitable habitat by staying on designated routes.
9. Limit new access routes created by the project.

10. Unavoidable impacts to the species will be mitigated through site specific consultation with the USFWS.

Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

LEASE NOTICE - Mexican Spotted Owl:

The Lessee/Operator is given notice that the lands in this lease contain suitable habitat for Mexican spotted owl, a federally listed species. Insert the following sentence if lease contains Designated Critical Habitat: *[The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298).]* Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage.

Current avoidance and minimization measures include the following:

1. Surveys following Forest Service approved protocol will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s).
2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat.
    a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat.
    b. Document if action is temporary or permanent.
3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.
4. Produced water will be managed to ensure maintenance or enhancement of riparian habitat.

5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting.
6. For all temporary actions that may impact owls or suitable habitat:
    a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey.
    b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season.
    c. Rehabilitate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc.
7. For all permanent actions that may impact owls or suitable habitat:
    a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities.
    b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC).
    c. Avoid drilling and placing permanent structures within 0.5 mi of suitable habitat as identified by the Forest Service.
    d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims.
    e. Limit disturbances to and within suitable habitat by staying on approved routes.
    f. Limit new access routes created by the project.

Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

LEASE NOTICE - California Condor:

The Lessee/Operator is given notice that the lands located in this parcel contain potential habitat for the California condor, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease if the area is known or suspected to be used by condors. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside potential habitat. A temporary action is completed prior to the following important season of use, leaving no permanent structures and resulting in no permanent habitat loss. This would include consideration for habitat functionality. A permanent action continues for more than one season of habitat use, and/or causes a loss of condor habitat function or displaces condors through continued disturbance (i.e. creation of a permanent structure requiring repetitious maintenance, or emits disruptive levels of noise).

The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage.

Current avoidance and minimization measures include the following:

1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s) approved by the USFS, and must be conducted according to approved protocol.
2. If surveys result in positive identification of condor use, all lease activities will require monitoring throughout the duration of the project to ensure desired results of applied mitigation and protection. Minimization measures will be evaluated during development and, if necessary, Section 7 consultation may be reinitiated.
3. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season.
4. Temporary activities within 0.5 miles of established roosting sites or areas will not occur during the season of use, August 1 to November 31, unless the area has been surveyed according to protocol and determined to be unoccupied.
5. No permanent infrastructure will be placed within 1.0 mile of nest sites.
6. No permanent infrastructure will be placed within 0.5 miles of established roosting sites or areas.
7. Lessee is responsible to remove big game carrion to 100 feet from on lease roadways occurring within foraging range as feasible in coordination with the UDWR and the Forest Service. Carrion will become an unnecessary attractant.
8. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.

Additional measures may also be employed to avoid or minimize effects to the species between the lease sale and lease development stages. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the Endangered Species Act.

CULTURAL RESOURCES (National Historic Preservation Act of 1966 (NHPA), P.L. 89-665 as amended by P.L. 94-422, P.L. 94-458, and P.L. 96-515):

The Forest Service authorized officer is responsible for ensuring that the leased lands are examined prior to the undertaking of any ground-disturbing activities to determine whether or not cultural resources are present, and to specify mitigation measures for effects on cultural resources that are found to be present.
The lessee or operator shall contact the Forest Service to determine if a site-specific cultural resource inventory is required prior to undertaking any surface-disturbing activities on Forest Service lands covered by this lease.
The lessee or operator may engage the services of a cultural resource specialist acceptable to the Forest Service to conduct any necessary cultural resource inventory of the area of proposed surface disturbance. In consultation with the Forest Service authorized officer, the lessee or operator may elect to conduct an inventory of a larger area to allow for alternative or additional areas of disturbance that may be needed to accommodate other resource needs or operations.
The lessee or operator shall implement mitigation measures required by the Forest Service to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing, salvage, and recordation or other protective measures.
During the course of actual surface operations on Forest Service lands associated with this lease, the lessee or operator shall immediately bring to the attention of the Forest Service the discovery of any cultural or paleontological resources. The lessee or operator shall leave such discoveries intact until directed to proceed by Forest Service.

AIR RESOURCES (Clean Air Act of 1963, as amended by P.L. 90-148, P.L. 91-604, and P.L. 101-549; National and State of Utah Ambient Air Quality Standards, National Standards of Performance for New Stationary Sources, National Prevention of Significant Deterioration Standards, National Emissions Standards for Hazardous Air Pollutants, Utah Air Conservation Regulations (R446), and Utah State Implementation Plan)

1. The operator shall comply with the following practices to control impacts to ambient air quality from oil and gas exploration and production activities:

    a. As appropriate, quantitative analysis of potential air quality impacts will be conducted for project-specific developments by the operator, in concert with direction from the Utah Department of Environmental Quality, Division of Air Quality (UDAQ), the Forest Service and cooperating federal land management agencies including but not limited to the National Park Service. The Forest Service will notify cooperating agencies as project specific proposals are received and additional air impact analyses are performed to ensure input from those agencies. Additional project specific air impact analyses would need to be conducted if the following project criteria are fulfilled:
    i. If an exploration drilling project is proposed within 5km of an adjacent Class I area, air quality related value (AQRV) impacts would need to be

addressed utilizing at a minimum the VISCREEN screening tool. Additional air impact analyses may be necessary based on the review of the initial VISCREEN analysis.

ii. If an oil and gas production project is proposed at a distance of over 60km from an adjacent Class I area and has emissions that exceed those utilized in the existing “Dixie 20-well development scenario", A quantitative air quality impact analysis would need to be conducted for the project that follows the guidance found in the FLAG modeling guidelines.

iii. If an oil and gas production project is proposed within 60km of an adjacent Class I area and has emissions that equal or exceed those utilized in the existing “Dixie 20-well development scenario", a quantitative air quality impact analysis would need to be conducted for the project that follows the guidance found in the FLAG modeling guidelines.

iv. If an exploratory drilling or oil and gas development project is proposed to occur within 60km of an adjacent Class I area and has emissions that are greater than those utilized in the existing "exploratory drilling scenario" but less than those utilized in the "Dixie 20-well development scenario", consultation with the Forest Service and cooperating Federal Agencies would be required to determine an appropriate assessment of air quality impacts. The level of additional analysis would be predicated on the size of the proposed project.

b. Compliance with Utah Air Conservation (UAC) Regulation R446-1 would be necessary. The best air quality control technology, as per guidance from the UDAQ, will be applied to actions as needed to meet air quality standards.

c. The operator will comply with UAC Regulation R446-1-4.5.3, which prohibits the use, maintenance, or construction of roadways without taking appropriate dust abatement measures. Compliance will be obtained through special stipulations as a requirement on new projects and through the use of dust abatement control techniques in problem areas.

d. The operator will manage authorized activities to maintain air quality within the thresholds established by the State of Utah Ambient Air Quality Standards and to ensure that those activities continue to keep the area in attainment, meet prevention of significant deterioration (PSD) Class II standards, and protect the Class I air shed of the National Parks (e.g. Zion, Bryce Canyon, and Capitol Reef National Parks).

e National Ambient Air Quality Standards will be enforced by the UDEQ, with EPA oversight. Special requirements to reduce potential air quality impacts will be considered on a case-by-case basis in processing land-use authorizations.

f. The operator will utilize BMPs and site specific mitigation measures, when appropriate, based on-site specific conditions, to reduce emissions and enhance air quality. Examples of these types of measures can be found in the Four Corners Air Quality Task Force Report of Mitigation Options, November 1, 2007; EPA Natural Gas STAR Program (http://www.epa.gov/gasstar/); and US Forest Service Emission Reduction Techniques for Oil and Gas activities 2011 (http://www.fs.fed.us/air/documents/EmissionReduction-010711x.pdf).

g. The operator will comply with a Condition of Approval for Applications for Permit to Drill, which includes: (1) All new and replacement internal combustion

diesel fired drilling engines must meet or exceed Tier II emissions limits as codified in 40 CFR Part 89 - "Control of Emissions From New and In-Use Nonroad Compression-Ignition Engines". (2) All new and replacement internal combustion diesel fired well pump engines must meet or exceed Tier II emissions limits for Particulate Matter and Tier III emissions limits for Oxides of Nitrogen and Carbon Monoxide as codified in 40 CFR Part 89 - "Control of Emissions From New and In-Use Nonroad Compression-Ignition Engines". (3) All new and replacement spark ignited natural gas fired internal combustion well-pump engines must meet or exceed emissions limits for Oxides of Nitrogen, Carbon Monoxide and Volatile Organic Compounds from New Source Performance Standard Subpart JJJJ for Stationary Spark Ignition Internal Combustion Engines manufactured since 2008. (4) All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. (5) All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NOx per horsepower-hour. (6) All diesel fuel fired internal combustion engines must utilize certified Ultra Low Sulfur Diesel fuel with a maximum sulfur content of 15 parts per million (PPM).

h. Lease holders will need to conduct detailed volatile organic compound (VOC) emissions inventories for any proposed facilities to provide necessary data to the BLM Utah State Office for their regional photochemical modeling.

i. Lease holders will need to examine the use of additional mitigations for ozone precursors.

CAVE RESOURCES

The Lessee/Operator is given notice that the lands located in this parcel contain potential areas with known or suspected caves, lava tubes, and karst features.

Cave resources are defined as any naturally formed void, cavity, recess, natural pit, sinkhole, or other feature that is large enough to permit a person to enter, whether or not the entrance is naturally formed or human-made. The term includes any extension or component of a cave or system of interconnected cave passages that occur beneath the surface of the earth or within a cliff or ledge, and/or natural subsurface water and drainage systems. Cave resources include any material or substance occurring naturally in caves, such as animal life, plant life, paleontological deposits, sediments, minerals, speleogens (relief features on the walls, ceiling, and floor of any cave that are part of the surrounding bedrock), and speleothems (any natural mineral formation or deposit occurring in a cave).

Surveys will be required to determine if cave resources occur within or adjacent to the proposed project area and all casing and cementing programs must be designed to allow for a karst protection string and all strings of casing must be cemented to the

surface. Upon abandonment of the well the wellbore will be cemented from the base of the cave/karst zone to the surface.

Most cave resource potential is in the Cedar City Ranger District; very few areas have been mapped.

FLOODPLAINS AND WETLANDS (EO 11988; EO 11990)

The lessee is hereby notified that this lease may contain land within a riparian or wetland ecosystem.

All activities within this area may be precluded or highly restricted in order to comply with Executive Order 11988 - Floodplain Management and Executive Order 11990 - Protection of Wetlands, in order to preserve and restore or enhance the natural and beneficial values served by floodplains and wetlands.

Occupancy and use of lands within riparian or wetland areas, as proposed in a Surface Use Plan of Operations, will be considered in an environmental analysis and mitigation measures deemed necessary to protect these areas identified. These areas are to be avoided to the extent possible, or special measures such as road design, well pad size and location or directional drilling, may be made part of the permit authorizing the activity.

SENSTIVE PLANT SPECIES (Forest Service Manual 2670)

The Forest Service is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any Forest-Sensitive plant species or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would lead to a loss of viability for any sensitive plant species.

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

DRINKING WATER PROTECTION ZONES (R309-600-7(1) Utah Administrative Code Source Protection: Drinking Water Source Protection for Groundwater Sources)

LEASE NOTICE - Groundwater Protection Zones 2-4:

This lease (or a portion thereof) is within one or more Drinking Water Source Protection Zones (DWSPZs) designated by the Utah Division of Drinking Water (DDW). Prior to a lease being offered up for sale that overlies a DWSPZ the BLM would attach IM No. UT

2010-055, Attachment F (Utah Drinking Water Source Protection Zone Lease Notice).

BLM's rules and regulations outlined in 43 CFR §3162.4-2, §3162.5-1(a) and §3162.5-2 (d) Control of wells, Onshore Oil and Gas Orders Nos. 2 and 7, and the Gold Book have been developed to address potential impacts to ground water from the drilling and completion of oil and gas wells, including the construction and use of reserve and production pits. Specifically, §3162.5-2 (d) *Protection of fresh water and other minerals* requires that the operator shall isolate freshwater-bearing and other usable water containing 5,000 ppm or less dissolved solids and Onshore Order No. 2 increases the requirement by establishing a 10,000 ppm total dissolved solids (TDS) threshold for protection of usable water.

Concurrent with submittal of an application for a permit to drill (APD), or any proposed surface-disturbing activity, the lessee/operator must provide the BLM Authorized Officer (AO) protective measures, which adequately address protection of the DWSPZ or other usable ground water zones. If operator proposed measures are considered insufficient to adequately protect the water zones, the AO will incorporate additional protective measures as condition(s) of approval (COAs). During further analysis at time of APD approval, the BLM would attach IM No. UT 2010-055, Attachment G (Utah Drinking Water Source Protection Zone COA).

Geophysical logs will be required in order to determine cement integrity and subsequent protection/isolation of usable ground water resources. Upon well completion, additional testing may be required to verify well bore integrity for protection of usable ground water resources. Testing results will be evaluated to determine if effective implementation of mitigation measures has been achieved.

LEASE NOTICE - Existing Transient Non-Community Water Systems – Zones T2 and T4:

This lease (or a portion thereof) is within Drinking Water Source Protection Zones designated as a transient non-community water system which does not serve 25 of the same nonresident persons per day for more than 6 months per year by the Utah Division of Drinking Water. The Transient System T2 protection zone for existing wells or springs is the area within a 250-day ground-water time of travel to the wellhead, spring or margin of the collection area, the boundary of the aquifer(s) which supplies water to the ground-water source, or the ground-water divide, whichever is closer. The Transient System T4 protection zone for existing wells or springs is the area within a 10-year ground-water time of travel to the wellhead, spring or margin of the collection area, the boundary of the aquifer(s) which supplies water to the ground-water source, or the ground-water divide, whichever is closer. Compliance with R309-600 is voluntary for existing transient non-community water systems. However, all new ground water sources (including transient non-community systems) must submit to the DDW a Preliminary Evaluation Report (R309-600-13(2)) and a Drinking Water Source Protection Plan (R309-600-7(1)) which designates ground water source protection zones 1 through 4. Protection of the zones T2 and T4 must also comply with **LEASE**

NOTICE – Groundwater Protection Zones 2-4.

LEASE NOTICE – Surface Water Protection Zones 2-4:

This lease (or a portion thereof) is within public Drinking Water Source Protection Zones 2, 3, and/or 4. Before application for a permit to drill (APD) submittal or any proposed surface-disturbing activity, the lessee/operator must contact the BLM field office and the public water system manager to determine any zoning ordinances, best management or pollution prevention measures or physical controls that may be required within the protection zone. Drinking Water Source Protection plans are developed by the public water systems under the requirements of R309-605-7, Drinking Water Source Protection for Surface Sources (Utah Administrative Code). There may also be county ordinances in place to protect the source protection zones, as required by Section 19-4-113 of the Utah Code.

Incorporated cities and towns may also protect their drinking water sources using Section 10-8-15 of the Utah Code. Cities and town have the extraterritorial authority to enact ordinances to protect a source of drinking water ... "For 15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream..." Class I cities (greater than 100,000 population) are granted authority to protect their entire watersheds.

Some public water sources qualify for monitoring waivers which reduce their monitoring requirements for pesticides and volatile organic chemicals (VOCs). Exploration, drilling and production activities within a Source Protection Zone could jeopardize these waivers, thus requiring increased monitoring. Contact the public water system to determine what effect your activities may have on their monitoring waivers. Please be aware of other state rules to protect surface and ground water, including Utah Division of Water Quality Rules R317 Water Quality Rules; and Rules of the Utah Division of Oil, Gas and Mining, Utah Oil and Gas Conservation Rules R649.
During further analysis at time of APD the BLM would attach IM No. UT 2010-055, Attachment G - Utah Drinking Water Source Protection Zone COA.

At the time of development, drilling operators will additionally conform to the BLM operational regulations and Onshore Oil and Gas Order No. 7 (which prescribes measures required for the handling of produced water to ensure the protection of surface and ground water sources) and the Surface Operating Standards and Guidelines for Oil and Gas Development, The Gold Book, Fourth Edition-Revised 2007 (which provides information and requirements for conducting environmentally responsible oil and gas operations).

LEASE NOTICE – Sole Source Aquifers:

This lease (or a portion thereof) is within Sole Source Aquifer Protection zone designated by the Environmental Protection Agency (EPA). BLM’s rules and regulations outlined in 43 CFR §3162.4-2, §3162.5-1(a) and §3162.5-2 (d) Control of wells,

Onshore Oil and Gas Orders Nos. 2 and 7, and the Gold Book have been developed to address potential impacts to ground water from the drilling and completion of oil and gas wells, including the construction and use of reserve and production pits. Specifically, §3162.5-2 (d) *Protection of fresh water and other minerals* requires that the operator shall isolate freshwater-bearing and other usable water containing 5,000 ppm or less dissolved solids and Onshore Order No. 2 increases the requirement by establishing a 10,000 ppm total dissolved solids (TDS) threshold for protection of usable water.

During further analysis at time of APD the BLM would attach IM No. UT 2010-055, Attachment G - Utah Drinking Water Source Protection Zone COA.

Concurrent with submittal of an application for a permit to drill (APD), or any proposed surface-disturbing activity, the lessee/operator must provide the BLM Authorized Officer (AO) protective measures, which adequately address protection of the Sole Source Aquifer and other usable ground water zones. If operator proposed measures are considered insufficient to adequately protect the water zones, the AO will incorporate additional protective measures as condition(s) of approval (COAs).

Geophysical logs will be required in order to determine cement integrity and subsequent protection/isolation of usable ground water resources. Upon well completion, additional testing may be required to verify well bore integrity for protection of usable ground water resources. Testing results will be evaluated to determine if effective implementation of mitigation measures has been achieved.

Remove pages C-12 to C-15 to be replaced by pages C-73 to C-83.

Form 3100-11
(July 2006)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Serial Number

OFFER TO LEASE AND LEASE FOR OIL AND GAS

The undersigned (page 2) offers to lease all or any of the lands in Item 2 that are available for lease pursuant to the Mineral Lands Leasing Act of 1920, as amended and supplemented (30 U.S.C. 181 et seq.), the Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351-359), or _____(other).

READ INSTRUCTIONS BEFORE COMPLETING

1. Name
   Street
   City, State, Zip Code

2. This application/offer/lease is for: *(Check Only One)* ☐ PUBLIC DOMAIN LANDS ☐ ACQUIRED LANDS (percent U.S. interest _____)

Surface managing agency if other than Bureau of Land Management (BLM): _____ Unit/Project _____

Legal description of land requested: *Parcel No.: _____ *Sale Date (mm/dd/yyyy): _____

***See Item 2 in Instructions below prior to completing Parcel Number and Sale Date.**

T.	R.	Meridian	State	County

Total acres applied for _____

Amount remitted: Filing fee $ _____ Rental fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease:

T.	R.	Meridian	State	County

Total acres in lease _____

Rental retained $ _____

This lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas (except helium) in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon for the term indicated below, subject to renewal or extension in accordance with the appropriate leasing authority. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and to regulations and formal orders hereafter promulgated when not inconsistent with lease rights granted or specific provisions of this lease.

NOTE: This lease is issued to the high bidder pursuant to his/her duly executed bid or nomination form submitted under 43 CFR 3120 and is subject to the provisions of that bid or nomination and those specified on this form.

Type and primary term:

☐ Noncompetitive lease (ten years)

☐ Competitive lease (ten years)

☐ Other _____

THE UNITED STATES OF AMERICA

by _____
(BLM)

_____
(Title) (Date)

EFFECTIVE DATE OF LEASE _____

(Continued on page 2)

4. (a) Undersigned certifies that (1) offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States or of any State or Territory thereof, (2) all parties holding an interest in the offer are in compliance with 43 CFR 3100 and the leasing authorities; (3) offeror's chargeable interests, direct and indirect, in each public domain and acquired lands separately in the same State, do not exceed 246,080 acres in oil and gas leases (of which up to 200,000 acres may be in oil and gas options or 300,000 acres in leases in each leasing District in Alaska of which up to 200,000 acres may be in options, (4) offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located; (5) offeror is in compliance with qualifications concerning Federal coal lease holdings provided in sec. 2(a)2(A) of the Mineral Leasing Act; (6) offeror is in compliance with reclamation requirements for all Federal oil and gas lease holdings as required by sec. 17(g) of the Mineral Leasing Act; and (7) offeror is not in violation of sec. 41 of the Act. (b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms conditions, and stipulations of which offeror has been given notice, and any amendment or separate lease that may include any land described in this offer open to leasing at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or in part unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments.

Duly executed this _____ day of _____ , 20 ____ _____

(Signature of Lessee or Attorney-in-fact)

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212 make it a crime for any person knowingly and willfully to make to any department or Agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

LEASE TERMS

Sec. 1. Rentals--Rentals must be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

(a) Noncompetitive lease, $1.50 for the first 5 years; thereafter $2.00;

(b) Competitive lease, $1.50; for the first 5 years; thereafter $2.00;

(c) Other, see attachment, or

as specified in regulations at the time this lease is issued.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties must be paid on the production allocated to this lease. However, annual rentals must continue to be due at the rate specified in (a), (b), or (c) rentals for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) must automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

See. 2. Royalties--Royalties must be paid to proper office of lessor. Royalties must be computed in accordance with regulations on production removed or sold. Royalty rates are:

(a) Noncompetitive lease, 12 1/2%;

(b) Competitive lease, 12 1/2 %;

(c) Other, see attachment; or

as specified in regulations at the time this lease is issued.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties must be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production must be delivered, unless otherwise agreed to by lessor, in merchantable condition on the premises where produced without cost to lessor. Lessee must not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor must lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty in lieu of rental of not less than the rental which otherwise would be required for that lease year must be payable at the end of each lease year beginning on or after a discovery in paying quantities. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge will be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (30 U.S.C. 1701). Lessee must be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to the failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

(Continued on page 3)

Sec. 3. Bonds - A bond must be filed and maintained for lease operations as required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage - Lessee must exercise reasonable diligence in developing and producing, and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection - Lessee must file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee must furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee must keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee must keep open at all reasonable times for inspection by any representative of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records must be maintained in lessee's accounting offices for future audit by lessor. Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section will be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations - Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses must be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor. Lessee must cease any operations that would result in the destruction of such species or objects.

Sec. 7. Mining operations - To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Sec. 8. Extraction of helium - Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee must include in any contract of sale of gas the provisions of this section.

Sec. 9. Damages to property - Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 10. Protection of diverse interests and equal opportunity - Lessee must pay, when due, all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee must comply with section 28 of the Mineral Leasing Act of 1920.

Lessee must comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractors must maintain segregated facilities.

Sec. 11. Transfer of lease interests and relinquishment of lease - As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 12. Delivery of premises - At such time as all or portions of this lease are returned to lessor, lessee must place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Sec. 13. Proceedings in case of default - If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to cancellation unless or until the leasehold contains a well capable of production of oil or gas in paying quantities, or the lease is committed to an approved cooperative or unit plan or communitization agreement which contains a well capable of production of unitized substances in paying quantities. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver will not prevent later cancellation for the same default occurring at any other time. Lessee will be subject to applicable provisions and penalties of FOGRMA (30 U.S.C. 1701).

Sec. 14. Heirs and successors-in-interest - Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.

(Continued on page 4)

A. General:

1. Page 1 of this form is to be completed only by parties filing for a noncompetitive lease. The BLM will complete page 1 of the form for all other types of leases.

2. Entries must be typed or printed plainly in ink. Offeror must sign Item 4 in ink.

3. An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.2-1 for office locations.

4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Special:

Item 1 - Enter offeror's name and billing address.

Item 2 - Identify the mineral status and, if acquired lands, percentage of Federal ownership of applied for minerals. Indicate the agency controlling the surface of the land and the name of the unit or project which the land is a part. The same offer may not include both Public Domain and Acquired lands. Offeror also may provide other information that will assist in establishing title for minerals. The description of land must conform to 43 CFR 3110. A single parcel number and Sale Date will be the only acceptable description during the period from the first day following the end of a competitive process until the end of that same month, using the parcel number on the List of Lands Available for Competitive Nominations or the Notice of Competitive Lease Sale, whichever is appropriate.

Payments: The amount remitted must include the filing fee and the first year's rental at the rate of $1.50 per acre or fraction thereof. The full rental based on the total acreage applied for must accompany an offer even if the mineral interest of the United States is less than 100 percent. The filing fee will be retained as a service charge even if the offer is completely rejected or withdrawn. To protect priority, it is important that the rental submitted be sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact area of which is not known to the offeror, rental should be submitted on the basis of each such lot or quarter-quarter section containing 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the rental remitted for the parts withdrawn or rejected will be returned.

Item 3 - This space will be completed by the United States.

NOTICES

The Privacy Act of 1974 and the regulations in 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this oil and gas lease offer.

AUTHORITY: 30 U.S.C. 181 et seq.; 30 U.S.C 351-359.

PRINCIPAL PURPOSE: The information is to be used to process oil and gas offers and leases.

ROUTINE USES: (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when consent or concurrence is required prior to granting a right in public lands or resources. (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

EFFECT OF NOT PROVIDING INFORMATION: If all the information is not provided, the offer may be rejected. See regulations at 43 CFR 3100.

The Paperwork Reduction Act of 1995 requires us to inform you that:
This information is being collected pursuant to the law.
This information will be used to create and maintain a record of oil and gas lease activity.
Response to this request is required to obtain a benefit.

BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 1 hour per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0185), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop, 401LS, Washington, D.C. 20240.

Form 3400-12
(September 2010)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COAL LEASE

FORM APPROVED
OMB NO. 1004-0073
Expires: June 30, 2013

Serial Number

PART 1. LEASE RIGHTS GRANTED

This lease, entered into by and between the UNITED STATES OF AMERICA, hereinafter called lessor, through the Bureau of Land Management (BLM), and *(Name and Address)*

hereinafter called lessee, is effective *(date)* / / , for a period of 20 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of the 20th lease year and each 10-year period thereafter.

Sec. 1.This lease is issued pursuant and subject to the terms and provisions of the:

☐ The Mineral Leasing Act of 1920, as amended, 30 U.S.C. 181 - 287; or
☐ The Mineral Leasing Act for Acquired Lands, 30 U.S.C. 351 - 359;
and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any bonuses, rents, and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants and leases to lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

containing acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1. (a) RENTAL RATE - Lessee must pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of $ for each lease year.

(b) RENTAL CREDITS - Rental will not be credited against either production or advance royalties for any year.

Sec. 2. (a) PRODUCTION ROYALTIES - The royalty will be percent of the value of the coal as set forth in the regulations. Royalties are due to lessor the final day of the month succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the BLM may accept, for a total of not more than 20 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty will be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee must maintain in the proper office a lease bond in the amount of $. The BLM may require an increase in this amount when additional coverage is determined appropriate.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused when operations under the lease are interrupted by strikes, the elements, or casualties not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years will terminate the lease. Lessee must submit an operation and reclamation plan for the BLM's approval pursuant to 30 U.S.C. 207(c) prior to conducting any development or mining operations or taking any other action on a leasehold which might cause a significant disturbance of the environment.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor of the lessee's application or at the direction of the lessor, this lease will become an LMU or part of an LMU, subject to the provisions set forth in the regulations.

The stipulations established in an LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease will then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

(Continued on page 2)

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee must furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee must keep open at all reasonable times for the inspection by BLM the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee must allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section will be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee must comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee must not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area must be submitted to the BLM.

Lessee must carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee must take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but are not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits not covered hereunder and approving easements or rights-of-way. Lessor must condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee must: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years should be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor. Neither lessee nor lessee's subcontractors should maintain segregated facilities.

Sec. 9. (a) TRANSFERS -

This lease may be transferred in whole or in part to any person, association or corporation qualified to hold such lease interest.

This lease may be transferred in whole or in part to another public body or to a person who will mine coal on behalf of, and for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.

This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest must be approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon lessor's acceptance of the relinquishment, lessee will be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC. - At such time as all portions of this lease are returned to lessor, lessee must deliver up to lessor the land leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, lessee must remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the BLM. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, will become the property of the lessor, but lessee may either remove any or all such property or continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor will waive the requirement for removal, provided the third parties do not object to such waiver. Lessee must, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to cancellation by the lessor only by judicial proceedings. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver will not prevent later cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS-IN-INTEREST - Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee must indemnify and hold harmless the United States from any and all claims arising out of the lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Clean Water Act (33 U.S.C. 1252 et seq.), the Clean Air Act (42 U.S.C. 4274 et seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.).

Sec. 15. SPECIAL STIPULATIONS -

(Continued on page 3)

Sec. 15. SPECIAL STIPULATIONS (Cont'd.) -

THE UNITED STATES OF AMERICA

_____	By _____
(Company or Lessee Name)	
_____	_____
(Signature of Lessee)	(BLM)
_____	_____
(Title)	(Title)
_____	_____
(Date)	(Date)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 4)

NOTICES

The Privacy Act and 43 CFR 2.48(d) require that you be furnished with the following information in connection with the information requested by this form.
AUTHORITY: 30 U.S.C. 181 - 287 and 30 U.S.C. 351 - 359 permit collection of the information requested by this form.
PRINCIPAL PURPOSE: The BLM will use the information you provide to process your application and determine if you are eligible to hold a coal lease on public lands.
ROUTINE USES: The BLM will only disclose this information in accordance with the provisions at 43 CFR 2.56(b) and (c).
EFFECT OF NOT PROVIDING INFORMATION: Submission of the requested information is necessary to obtain or retain a benefit. Failure to submit all of the requested information or to complete this form may result in delay or preclude the BLM's acceptance of your application for a coal lease.

The Paperwork Reduction Act requires us to inform you that:
The BLM collects this information to evaluate and authorize proposed exploration and mining operations on public lands.
Submission of the requested information is necessary to obtain or retain a benefit.
You do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: The public reporting burden for this form is estimated to average 25 hours per response when the form is used under the authority of 43 subpart 3422 (Lease Sales), or 800 hours per response when the form is used under the authority of 43 subpart 3430 (Preference Right Leases). The estimated burdens include the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. You may submit comments regarding the burden estimate or any other aspect of this form to: U.S. Department of the Interior, Bureau of Land Management (1004-0073), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, Mail Stop 401 LS, Washington, DC 20240.

Form 3200-24a
(September 2008)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

Serial No.

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1. Name	1a. Street	
1b. City	1c. State	1d. Zip Code

2. Surface managing agency if other than BLM: _____ Unit/Project: _____

Legal description of land requested (segregate by public domain and acquired lands): Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted: Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease: Enter T., R., Meridian, State and County

Total Acres in Lease _____

Rental Retained $ _____

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to: applicable laws; the terms, conditions, and attached stipulations of this lease; the Secretary of the Interior's regulations and formal orders in effect as of lease issuance; and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease:

- ☐ Competitive
- ☐ Noncompetitive
- ☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____
(Signing Official)

_____
(Printed Name)

_____ _____
(Title) (Date)

EFFECTIVE DATE OF LEASE _____

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4. (a) **The undersigned certifies that:**
(1) The offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States, any State or the District of Columbia; (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act; (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act; and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments. Title 18 U.S.C. § 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

Duly executed this _____ day of _____, 20____

(Printed Name of Lessee or Attorney-in-fact) (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year. Annual rental rates per acre or fraction thereof, as applicable, are:
(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant): **$1.00 for the first 10 years; thereafter $5.00; or**
(b) Competitive lease: $2.00 for the first year; $3.00 for the second through tenth year; thereafter $5.00.
Annual rental is always due by the anniversary date of this lease (43 CFR 3211.13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production.
Rental may only be credited toward royalty under 43 CFR 3211.15 and 30 CFR 218.303. Rental may not be credited against direct use fees. Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213.14.

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor. Royalties are due on the last day of the month following the month of production. Royalties will be computed in accordance with applicable regulations and orders. Royalty rates for geothermal resources produced for the commercial **generation of electricity but not sold in an arm's length transaction are: 1.75 percent for the first 10 years of production and 3.5 percent after the first 10 years. The royalty rate is to be applied to the gross proceeds** derived from the sale of electricity in accordance with 30 CFR part 206 subpart H.
The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U.S.C. 181), is 5 percent, except for sodium compounds, produced between September 29, 2006 and September 29, 2011 (Pub. L. No. 109-338, §102; note to 30 U.S.C. 362) for which the royalty rate is 2 percent. No royalty is due on byproducts that are not **specified in 30 U.S.C. § 181. (43 CFR 3211.19.)**
If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease.
(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211.17, 3211.18).
(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212.15(a) and 30 CFR 218.305.
(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211.18; 30 CFR 206.356). This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202.351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases. Direct use fees are due on the last day of the month following the month of production.
(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211.18(a)(3) and 30 CFR 206.366, check here: ☐. A lessee under this paragraph is not subject to paragraph (d), above. In lieu of royalties, the lessee under this paragraph must pay a nominal fee of
$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207.11, 3207.12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor. Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207.13).

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease. At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold; (b) proceeds derived therefrom or from the sale of electricity generated using such resources; (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic **electricity (as defined in 30 CFR 206.351) or electricity for lease operations, or otherwise used for lease** operations related to the commercial production or generation of electricity; and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.
In a format and manner approved by lessor, lessee must: keep a daily drilling record, a log, and complete information on well surveys and tests; keep a record of subsurface investigations; and furnish copies to lessor when required.
Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or **direct use fees. All such records must be maintained in lessee's accounting offices for future audit by lessor and** produced upon request by lessor or lessor's authorized representative or agent. Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent **consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor** reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee. Prior to disturbing the surface of the leased lands, lessee must **contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be** necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor. If, in the conduct of operations, threatened or endangered species, objects of **historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must** immediately contact lessor. Lessee must cease any operations that are likely to affect or take such species, or **result in the modification, damage or destruction of such habitats or objects.**

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized **water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial** production or use thereof by lessee.

Sec. 8. Damages to property—Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety. Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. Lessee must comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractor may maintain segregated facilities.

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease. Subject to the requirements of 43 CFR subpart **3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written** relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for: paying all accrued rentals and royalties; plugging and abandoning all wells on the relinquished land; restoring and reclaiming the surface and other resources; and complying with 43 CFR 3200.4.

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must **place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a** reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment.

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200.4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default. Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time. Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200.4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense.

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and **every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective** parties hereto.

(Continued on page 3)

INSTRUCTIONS

A. General

1. Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases. The BLM may use the "Comments" space under Item 3 to identify when: the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked); the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12; the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(e) under Lease Terms must also be checked); the lease is a competitive lease with direct-use-only stipulations attached; or other special circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2. Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3. An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10; 43 CFR 3206.12).

Payments: For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10; 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the assumption that each such lot or quarter-quarter section contains 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17; 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.
AUTHORITY: 30 U.S.C. 1000 et seq.
PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.
ROUTINE USES: (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

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APPENDIX ROD-B

MOU REGARDING AIR QUALITY

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MEMORANDUM OF UNDERSTANDING AMONG THE U.S. DEPARTMENT OF AGRICULTURE, U.S. DEPARTMENT OF THE INTERIOR, AND U.S. ENVIRONMENTAL PROTECTION AGENCY, REGARDING AIR QUALITY ANALYSES AND MITIGATION FOR FEDERAL OIL AND GAS DECISIONS THROUGH THE NATIONAL ENVIRONMENTAL POLICY ACT PROCESS

PREAMBLE

Safe and responsible domestic oil and gas production is vital to America's energy security. In facilitating oil and gas development, we must ensure that public health, safety, and environmental quality standards are met efficiently, transparently, and in a well-coordinated fashion. Through this Memorandum of Understanding (MOU), the U.S. Department of Agriculture (USDA), the U.S. Department of the Interior (DOI), and the U.S. Environmental Protection Agency (EPA) (Signatories) commit to a clearly defined, efficient approach to compliance with the National Environmental Policy Act (NEPA) regarding air quality and air quality related values (AQRVs), such as visibility, in connection with oil and gas development on Federal lands. The MOU charts a path to protect air quality and AQRVs as we move forward with responsible oil and gas development on Federal lands.

The Signatories expect this standardized approach—which builds on best practices learned from recent successful collaboration—will facilitate the completion of NEPA environmental analyses for Federal land use planning and oil and gas development decisions. The Signatories also expect it to lead to improved design and implementation of mitigation measures, including best management practices, that will both protect air quality and AQRVs, and provide opportunities for future oil and gas development.

In recent years, demand for development of oil and gas resources has increased, while at the same time air quality in some areas of intensive oil and gas development has correspondingly worsened, with some areas experiencing episodes of high levels of air pollution and negative impacts to AQRVs. Effectively addressing these issues requires clear lines of communication and close coordination among the various Federal agencies that have a role in issuing the environmental analyses associated with planning and development decisions. Specific to this process, authorities and requirements of different agencies inadvertently have contributed to heightened uncertainty for oil and gas companies proposing development on Federal lands regarding the NEPA process and have undermined prospects for timely

decisionmaking. In some instances, major oil or gas development proposals have been delayed while questions about appropriate air analyses and mitigation measures were resolved. In addition, administrative protests and lawsuits have been filed challenging air quality analyses and mitigation measures and further delaying land use plans and energy development projects. Through this Administration's focused effort to improve coordination, the agencies have developed a number of best practices that have already yielded demonstrable results in both shortening the time for planning and project decisions and in increasing efficiency for companies and Federal agencies. Through this MOU, the Signatories seek to formalize such successful processes.

Through this MOU, the Signatories are demonstrating their commitment to act collaboratively in order to protect air quality and AQRVs and facilitate the responsible development of oil and gas resources on Federal lands. The MOU will accomplish these goals by providing:

- Commitments by the Signatories' respective Agencies to collaborate throughout the NEPA process, including providing the Lead Agency with input and assistance early in the process on appropriate analyses and mitigation to address air quality and AQRVs;
- Common procedures for determining which type of air quality analyses are appropriate and when air modeling is necessary;
- Specific provisions for analyzing and discussing impacts to AQRVs and for mitigating such impacts;
- A dispute resolution process to facilitate the timely resolution of differences among the Signatories or their respective Agencies; and
- Assurances that, if the EPA determines the MOU procedures have been followed, it will rate the resulting NEPA analyses of air quality or AQRVs as "adequate" (and not "inadequate" or "3") under the EPA criteria for rating draft Environmental Impact Statements (EIS).

Through the MOU, the Signatories recognize that air resources are important, and merit protection within their respective Agencies' legal authorities. The Agencies will strive to ensure that Federal oil and gas decisions do not cause or contribute to exceedances of the National Ambient Air Quality Standards (NAAQS), nor adversely impact AQRVs in Class I Areas or sensitive Class II Areas. The MOU provides a process that will foster timely, responsible decisions on the development of oil and gas resources on Federal lands. With the signing of this MOU, the Signatories reaffirm the importance of predictable, science-based processes to protect air quality and AQRVs, provide appropriate opportunities for development of Federal oil and gas resources, and eliminate unnecessary uncertainty and delay.

I. PURPOSE

The USDA on behalf of the U.S. Forest Service (FS); the DOI on behalf of the Bureau of Land Management (BLM), the Fish and Wildlife Service (FWS), and the National Park Service (NPS); and the EPA enter into this MOU. The purpose of this MOU is to set forth expectations and agreements for addressing air quality analyses and mitigation measures through the NEPA process related to Federal oil and gas planning, leasing, or field development decisions.

Air quality is important to public health and the environment. Federal statutes, including the Clean Air Act (CAA) and Federal Land Policy and Management Act (FLPMA), provide authority for protecting and improving air resources. Additionally, the National Forest Management Act (NFMA) affords the FS the opportunity to consider sustainable management of National Forest System ecosystems and the interrelationships among air, plants, animals, soil, water, and other environmental factors. Further, the Agencies with Federal land management responsibilities acknowledge that air resources are important and merit protection within their respective legal authorities. Accordingly, the Agencies will strive to ensure, to the maximum extent practicable, that Federal decisions relating to oil and gas will not cause or contribute to exceedances of the NAAQS, nor adversely impact AQRVs in Class I Areas, or sensitive Class II Areas.

In recognition of the need to balance the national mandate to protect air quality and AQRVs, human health, and the environment with the Nation's ongoing demand for energy, the Signatories have come together to create a coordinated, consistent process to evaluate and mitigate adverse impacts to air quality and AQRVs from Federal decisions relating to oil and gas activities within the NEPA process. Additional goals for the MOU are to:

- Improve collaboration and respect in conducting analyses of impacts to air quality and AQRVs and mitigating those impacts;
- Provide greater certainty and transparency for the Agencies, project proponents, and the public regarding the conduct and review of analyses of impacts to air quality and AQRVs in the NEPA process, and the application of mitigation;
- Promote and support a regional perspective on air resources, and collaborative development of appropriate regional air quality assessments; and
- Encourage both integration of design features that reduce emissions and application of cost-effective mitigation measures in projects covered by this MOU.

The Signatories recognize that Federal land management agencies must consider multiple resources when authorizing activities, and, therefore, acknowledge that air quality and AQRVs are among the many resources that must be considered in the decisionmaking process.

II. SCOPE AND AUTHORITIES

A. Scope of this MOU

1. This MOU focuses on analyzing and addressing air quality impacts (i.e., direct, indirect, and cumulative) associated with Federal decisions relating to on-shore oil and gas planning, leasing, or field development, including exploration, development, and production. This MOU is intended to refine existing Agency guidance and procedures. Specifically, the MOU establishes procedures to be followed for assessing impacts related to the NAAQS and AQRVs.

2. The MOU procedures may be used to assess emissions of hazardous air pollutants (HAPs) and greenhouse gases (GHGs), but that is not their intended purpose. However, emissions of GHGs and HAPs need to be considered, and may need to be assessed and disclosed in NEPA documents. The Agencies agree that mitigation and control measures to address the NAAQS and impacts to AQRVs often result in co-benefit reductions in GHGs and HAPs. Such reductions in GHGs and HAPs should be taken into consideration.

3. In all cases, the Agencies will follow the Council on Environmental Quality's (CEQ) NEPA regulations and guidance, as well as their own NEPA procedures.

4. The Agencies will emphasize collaboration in determining the appropriate air quality analysis under the circumstances and preparing applicable NEPA documents. Collaboration includes:

    - Informal communications among the Agencies to inform each other of issues, concerns, review schedules, etc.;
    - Timely requests for review;
    - Timely submission of review comments or the determination that providing comments is unnecessary;
    - Documentation of the results of reviews and decisions.

5. To meet the goal of promoting and supporting a regional perspective for air quality analysis, the Agencies will consider programmatic NEPA evaluations for Federal oil and gas decisions, as appropriate.

6. If disagreements arise between or among the Agencies about implementing this MOU, the affected Agencies intend to use the Dispute Resolution process in Section VII. The Agencies also are encouraged to resolve the dispute through informal discussions among higher-level decision-makers before invoking the formal Dispute Resolution process.

7. State, local, and tribal governments have authorities and responsibilities under the CAA and collaborate with Federal land management agencies and the EPA. Nothing in this MOU is intended to (a) alter or replace State, local, or tribal regulatory authorities or

responsibilities; or (b) diminish the Signatories' or the Agencies' interactions with State, local, or tribal governments.

8. The Signatories acknowledge there may be on-going efforts that address similar issues and working relationships. Those efforts are encouraged to follow the provisions of this MOU as appropriate.

B. Authority

The authority for the Signatories to enter into and carry out this MOU includes:

- The Clean Air Act, 42 U.S.C. 7401 *et seq.*
- The Energy Policy Act of 2005, Public Law 109-58
- The Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701 *et seq.*
- The Federal Onshore Oil & Gas Leasing Reform Act of 1987, 30 U.S.C. 181 *et seq.*
- Mineral Leasing Act of 1920, as amended, 30 U.S.C. 181 *et seq.*
- National Environmental Policy Act, 42 U.S.C. 4321 *et seq.*
- National Forest Management Act, 16 U.S.C. 1600 *et seq.*
- National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee
- The National Park Service Organic Act of 1916, as amended, 16 U.S.C. 1 *et seq.*
- The Organic Administration Act of 1897, 16 U.S.C. 473-475, 477-482, 551
- Wilderness Act of 1964, 16 U.S.C. 1131 *et seq.*

III. DEFINITIONS

Terms defined in NEPA or CEQ regulations and used in this MOU have the meaning given them in NEPA or CEQ regulations. The following terms as used in this MOU are defined as:

"Adverse impacts" is used in the NEPA context. With respect to AQRVs, it does not refer to a formal determination of "adverse AQRV impacts" under the CAA.

"Agency" or "Agencies" – the EPA or the following Agencies or Bureaus of the Signatories: the U.S. Forest Service (FS) of the USDA; and the Bureau of Land Management (BLM), the U.S. Fish and Wildlife Service (FWS), and the National Park Service (NPS) of the DOI.

"Air quality or AQRVs analysis / analyses" consists of qualitative or quantitative methods for estimating impacts to the NAAQS, AQRVs, or resources, resulting from emissions as identified in the emissions inventory. Methods range from specific numerical air quality models to narrative description of physical, chemical, or transport processes.

"Air Quality Related Values (AQRVs)" – a resource, as identified by the Federal Land Manager for one or more Federal areas that may be adversely affected by a change in air

quality. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the Federal Land Manager for a particular area.

"Class I Area" – as defined in Section 162(a) of the CAA (42 USC § 7472(a)), to be national parks over 6,000 acres, national wilderness areas and national memorial parks over 5,000 acres, and international parks that existed on August 7, 1977 and as designated by States and Indian tribes pursuant to their authority in Section 164 of the CAA (42 U.S.C. § 7474).

"Emissions" – direct and precursor emissions that are regulated under the CAA and its implementing regulations to reduce concentrations of criteria pollutants (ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb)). For purposes of analyzing impacts to AQRVs, emissions also include secondary pollutants (such as pollutants referenced in the Federal Land Managers' Air Quality Related Values Work Group (FLAG) guidance document). GHGs are not included.

"Emission Inventory" – an accounting of the amount of emissions (as described in Section V.E.3) discharged into the atmosphere from a proposed action that influence local and regional air quality and AQRVs.

"Federal Land Manager (FLM)" – as defined in Section 302 of the CAA (42 U.S.C. §7602) and 40 CFR §51.301. Pursuant to delegated authority, for FS lands the FLM is the Regional Forester or an individual Forest Supervisor; for FWS and NPS lands the FLM is the DOI Assistant Secretary for Fish and Wildlife and Parks.

"Greenhouse Gases (GHG) Emissions" – emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

"Lead Agency" – as defined in 40 CFR §1508.16.

"National Ambient Air Quality Standards (NAAQS)" – as defined in the CAA (42 U.S.C. § 7409) and 40 CFR Part 50.

"Prevention of Significant Deterioration (PSD) Increment" – the maximum allowable increases in ambient pollution concentrations allowed over baseline concentrations established under Sections 163 and 166 of the CAA. (*See* 40 CFR §51.166 (c) for increments for specific pollutants.)

"Proximity" – as determined by the Lead Agency on a case-by-case basis after conferring with the other Agencies and considering the Agencies' applicable guidance.

"Reasonably foreseeable number of wells" – the number of oil and gas wells that could reasonably be expected to be developed during exploration, development, and production activities in a specified planning, leasing, or project area, consistent with applicable guidance including the *Interagency Reference Guide Reasonably Foreseeable Development Scenarios*

And Cumulative Effects Analysis For Oil and Gas Activities On Federal Lands In the Greater Rocky Mountain Region, dated June 2003.

"Sensitive Class II Area" – for purposes of this MOU is an area identified by the affected Agency on a case-by-case basis.

"Substantial Increase in Emissions" – as determined by the Lead Agency on a case-by-case basis after conferring with the other Agencies. In making its determination, the Lead Agency will consider:

- The Emissions Inventory prepared pursuant to Section V.E.3;
- Whether an increase in the emissions related to the proposed action, based on best professional judgment, may cause or contribute to exceedances of the NAAQS or adversely impact AQRVs in Class I areas or resources in sensitive Class II areas; and
- FLAG guidance or other guidance if applicable to the Lead Agency.

IV. ROLES AND RESPONSIBILITIES

A. Bureau of Land Management

The BLM administers more than 245 million surface acres in the National System of Public Lands and 700 million acres of Federal subsurface mineral estate underlying lands owned and managed by other entities, including other Federal agencies and state and private landowners. The BLM manages the public lands on the basis of the "multiple-use" and "sustained yield" mandate described in FLPMA, which directs the BLM to manage the public lands in a manner that will protect the quality of air and atmospheric values, among others. In addition, in developing land use plans, the BLM must provide for compliance with applicable state and Federal pollution control laws, including those addressing air (such as the CAA). Consistent with FLPMA, anyone using, occupying, or developing the public lands must comply with applicable state and Federal pollution control laws, including the CAA. The BLM has responsibility, under the CAA, for Class I Areas that it manages.

B. Environmental Protection Agency

The EPA is responsible for reviewing and commenting on NEPA documents, particularly EISs, pursuant to NEPA and the EPA's specific authorities under Section 309 of the CAA. Additionally, the EPA administers the programmatic and regulatory aspects of the CAA. The EPA sets the NAAQS, develops and promulgates CAA implementing regulations, oversees State and tribal CAA regulatory programs, and issues CAA permits, where appropriate.

C. Forest Service

The FS is responsible for the surface management of 193 million acres of National Forest System lands, portions of which are covered by Federal oil and gas leases that grant exclusive rights for exploration and development. The FS also evaluates National Forest

System lands for potential oil and gas leasing. The 1977 CAA Amendments protect visibility and other AQRVs in Class I areas from the adverse impacts of air pollution. The FS reviews permit applications and NEPA documents, for new or expanding industrial facilities and activities proposing to construct on or near FS administered lands, to determine whether air pollution from these sources would have an effect on FS administered lands.

D. Fish and Wildlife Service and National Park Service

The FWS and NPS are responsible for the surface management of 150 and 84 million acres, respectively, of National Wildlife Refuge and National Park System lands. The 1977 CAA Amendments give FWS an affirmative responsibility to protect visibility and other AQRVs of Class I wilderness areas under its jurisdiction from the adverse impacts of air pollution. Similarly, the 1977 CAA Amendments give NPS an affirmative responsibility to protect visibility and other AQRVs of Class I national parks and wilderness areas under its jurisdiction from the adverse impacts of air pollution. In addition, the National Wildlife Refuge Systems Improvement Act, the National Park Service Organic Act, and associated Management Policies require FWS and NPS to protect the AQRVs of all of their lands, including both Class I and Class II areas, for the enjoyment of future generations. The FWS and NPS meet these responsibilities by reviewing permit applications and NEPA documents for new or expanding industrial facilities and activities proposing to construct on or near NPS or FWS administered lands. As part of this review, FWS and NPS determine whether air pollution from these sources would have an adverse effect on FWS or NPS administered lands.

V. AIR QUALITY AND AQRVS ANALYSES

A. The Signatories will collaborate to implement this MOU. The analysis of impacts to air quality and AQRVs will be conducted in accordance with current technical standards, guidance, and practices and will be used to inform the decisionmaker, the Agencies, and the public. The Lead Agency should use existing analyses to the extent practicable.

B. When preparing an EIS for a Federal oil and gas decision, a Lead Agency will follow the procedures in this MOU and the Appendix for the air quality and AQRVs analyses. When preparing an Environmental Assessment for a Federal oil and gas decision where air quality or AQRVs are issues warranting NEPA analysis, the Lead Agency will consider following the procedures established in this MOU and the Appendix.

C. Technical work groups can facilitate communication and share expertise for conducting air quality and AQRVs analyses early in the NEPA process.

    1. When the Lead Agency determines through NEPA scoping, that air quality or AQRVs will be significantly impacted by a proposed action, the Lead Agency will convene a technical workgroup for that proposed action composed of the Agencies to provide advice about the analysis. The Agencies will assign appropriate staff, who will fully participate in the technical workgroup, which will establish a work plan, consistent with the Lead Agency's schedule, for circulating and reviewing appropriate work products.

2. If air quality or AQRVs are a concern, but will not be significantly impacted by a proposed action, the Lead Agency may convene a technical workgroup. Alternatively, an Agency may ask the Lead Agency to convene a technical workgroup in those circumstances.

3. The Lead Agency may rely on an existing stakeholder group that complies with the Federal Advisory Committee Act (FACA), as appropriate, or include cooperating agencies in a technical workgroup, provided the technical workgroup meets the requirements established in Section V.C.1. above.

D. Consistent with NEPA and its implementing regulations, the Lead Agency will complete and document supporting air quality and AQRVs analyses prior to Federal oil and gas planning, leasing, or field development decisions.

1. If the Lead Agency cannot complete necessary quantitative analyses (e.g., if a reasonably foreseeable number of wells cannot be determined, see V.E.1), it will include in the appropriate NEPA documents:

   - A qualitative narrative description of the air quality issues or impacts;
   - A statement of when more detailed information will likely be available; and
   - A commitment to complete the air quality and AQRVs analyses once the requisite information is available.

2. If the Lead Agency encounters a situation involving incomplete or unavailable information as defined in 40 CFR §1502.22, it will follow that provision and its own NEPA procedures.

E. Procedures For Assessing Impacts to Air Quality and AQRVs

1. Early in the NEPA process, the Lead Agency will discuss with the Agencies:

   a. Information about the affected environment to include in the baseline assessment;
   b. Methodology, assumptions, and scale (e.g. local or regional) of the analyses;
   c. Monitoring protocols and mitigation (see Section VI).

As early as possible in its planning process, the Lead Agency will identify the reasonably foreseeable number of oil or gas wells that can be expressed as a range, expected to be located within the planning area. Existing reasonably foreseeable development scenarios can be used to identify the number of wells.

2. Once the Lead Agency identifies the reasonably foreseeable number of oil or gas wells, it will prepare an Emissions Inventory of criteria pollutants and volatile organic

compounds. The Lead Agency will use the Emission Inventory to analyze whether modeling is required as provided in V.E.3 below.

3. Except as provided in V.E.4 below, the Lead Agency will conduct modeling to assess impacts to air quality and/or AQRVs if a proposed action meets at least one of the criteria in subparagraph (a) *and* at least one of the criteria in subparagraph (b) below:

   a. *Emissions/Impacts* - the proposed action:

      - Is anticipated to cause a Substantial Increase in Emissions based on the Emissions Inventory prepared pursuant to Section V.E.2; or
      - Will materially contribute to potential adverse cumulative air quality impacts as determined under NEPA.

   b. *Geographic Location* - the proposed action is in:

      - Proximity to a Class I or sensitive Class II Area; or
      - A Non-Attainment or Maintenance Area; or
      - An area expected to exceed the NAAQS or PSD increment based on:
        - Monitored or previously modeled values for the area;
        - Proximity to designated Non-Attainment or Maintenance Areas; or
        - Emissions for the proposed action based on the Emissions Inventory prepared pursuant to Section V.E.2.

   c. Modeling will be conducted as described in the Appendix. If multiple approved models, or a completed regional air quality assessment, can provide equivalent information, the Lead Agency will choose the appropriate approach or approaches.

4. Modeling will not be required in the following circumstances:

   a. If the Lead Agency demonstrates and the EPA, and the Agencies whose lands are affected, concur (in writing or by electronic transmission) that, due to mitigation or control measures or design features that will be implemented, the proposed action will not cause a Substantial Increase in Emissions. The demonstration will describe the proposed features or measures, the anticipated means of implementation, and the basis for the conclusion that the proposed action will not cause a Substantial Increase in Emissions.

   b. If the EPA and the Agencies whose lands are affected concur (in writing or by electronic transmission) that:

      - An existing modeling analysis addresses and describes the impacts to air quality and AQRVs for an area under consideration, and

- The analysis can be used to assess the impacts of the proposed action.

5. If modeling is not required because either:

   - The Section V.E.3 criteria above *have not been* met, or
   - one of the circumstances in Section V.E.4 above *has been* met,

   the Lead Agency will document its decision not to model and include a qualitative narrative analysis of the impacts to air quality and AQRVs in the appropriate NEPA documents.

6. Additional Procedures for AQRVs

   a. When the BLM is the Lead Agency, the BLM will apply:

      1. The BLM threshold values and methodologies assessing impacts to AQRVs on BLM administered lands, unless otherwise determined by the BLM; and

      2. The threshold values and methodology in the FLAG guidance assessing impacts to AQRVs on FS, FWS, NPS administered lands, or other guidance accepted by FS, FWS, or NPS.

   b. When FWS, NPS, or FS is the Lead Agency, the Lead Agency will apply:

      1. The threshold values and methodology in the FLAG guidance assessing impacts to AQRVs on FS, FWS, NPS administered lands, or other guidance accepted by FS, FWS, or NPS; and

      2. The BLM threshold values and methodologies assessing impacts to AQRVs on BLM administered lands, unless otherwise requested by BLM.

   c. The Lead Agency will identify, consider, and discuss in the body of the NEPA document:

      1. Analysis results for the threshold values assessed, as stated in Section V.E.6 (a) and (b) above, to facilitate comparison of the results;

      2. The Agencies' views about: (a) the nature of impacts to AQRVs on the affected Agencies' land and (b) potential mitigation measures.

F. The Agencies will comply with the General Conformity requirements under CAA Section 176 (42 U.S.C. § 7506) and the corresponding regulations at 40 CFR § 93.150, *et seq.*, where applicable.

G. For informational purposes, the Lead Agency will calculate, and disclose in the NEPA document, PSD increment consumption from the proposed action at Class I Areas.

Further evaluation may need to be performed under applicable statutory or regulatory requirements if an affected Class I Area has known increment violations.

H. The procedures in Section V of this MOU are designed to ensure that adequate air quality and AQRVs analyses will be prepared for NEPA documents. For purposes of this Section H, the term air quality relates solely to Emissions associated with achieving the NAAQS and impacting AQRVs (as those terms are defined in Section III). Emissions of HAPs and GHGs are not included within the scope of this Section H. and the term air quality as used in this Section H.

   If the EPA determines that the MOU procedures have been followed for an EIS, it will find that the air quality or AQRVs analysis is adequate. However, any future laws, regulations or policies may require additional analyses beyond those contemplated by this MOU. In addition, the EPA may determine that an EIS presents inadequate discussions of proposed mitigation or control measures or design features to address adverse impacts to air quality or AQRVs, or inadequate analysis of impacts to resources other than air. Further, because adequate analyses do not mean that the impacts will be environmentally satisfactory, the EPA will continue to convey its views on the environmental soundness of respective actions in the comment letters it issues pursuant to NEPA and Section 309 of the CAA. Moreover, as required by Section 309 of the CAA, if EPA determines that the effects of a Federal oil or gas action are unsatisfactory from the standpoint of public health or welfare or environmental quality, it will refer the action to the CEQ.

VI. MITIGATION AND EMISSIONS REDUCTIONS

A. The Lead Agency, in collaboration with the other Agencies as provided in Section V.E.1, will identify reasonable mitigation and control measures and design features to address adverse impacts to air quality or AQRVs on all affected lands in the NEPA process. Mitigation and control measures can include: best management practices, control technologies, and pace of development.

B. The Lead Agency will evaluate the reasonable mitigation and control measures and design features to eliminate or reduce adverse impacts to air quality or AQRVs identified in the NEPA process.

C. The Lead Agency will determine the appropriate mitigation and control measures and design features to (1) eliminate or reduce adverse impacts to air quality or (2) eliminate or reduce adverse impacts to AQRVs (including on other Agencies' lands), and describe them in the NEPA decision document.

D. As provided for by law and consistent with lease rights and obligations, the Lead Agency will:

   - Ensure implementation of reasonable mitigation and control measures and design features through appropriate mechanisms, including lease stipulations and conditions of approval, notices to lessees, and permit terms and conditions;

- Take appropriate steps to retain the flexibility to implement additional reasonable mitigation and control measures and design features for permitted operations;
- Work to implement additional reasonable mitigation and control measures and design features to reduce future emissions from permitted operations.

E. The Lead Agency will consider adopting a monitoring and enforcement program to verify that mitigation and control measures and design features are achieving their intended purposes. Monitoring should be conducted in cooperation with stakeholders.

F. If the Lead Agency determines that mitigation and control measures and design features are not achieving their intended purposes, it will take appropriate action, consistent with applicable law and lease rights and obligations.

VII. DISPUTE RESOLUTION

A. The Signatories will resolve expeditiously all disputes related to this MOU. Disputes will be raised and resolved in a timely manner with due consideration to the projects or other activities impacted by the dispute.

B. The Signatories encourage communication and joint problem solving to recognize and deal with disputes as they arise and to maintain constructive interagency relationships.

C. Decisionmaking will occur at the lowest level possible by staff with specific knowledge and relevant experience. Unresolved issues will be elevated quickly to higher-level decisionmakers to apply a broader policy perspective as needed.

D. The Agencies agree to the following dispute resolution process if a dispute arises between or among any of them relating to implementation of this MOU.

1. Level One: The Agency that seeks resolution will provide a written statement of the dispute to the involved Agencies' Level One contacts identified in Section IX. The written statement will include the following: a brief summary of the dispute, a brief statement of each issue that needs to be resolved or decided, up to three proposed solutions including the reasons these solutions are important, and supporting documentation. The Agencies involved in the dispute will engage in discussions and attempt to arrive at a consensus resolution of the dispute.

2. Level Two: If resolution is not reached within 15 working days of receipt of the statement of dispute, the dispute may be elevated by written notice to the involved Agencies' Level Two contacts identified in Section IX. The written notice will include: a brief summary of the dispute, a brief statement of each issue that needs to be resolved or decided, a brief description of the Level One efforts to resolve the issue(s) and the reasons those efforts were unsuccessful, and the perspectives of the other Agencies on the dispute, outstanding issues, and previous efforts to reach a resolution. Each Agency involved in the dispute will prepare a brief paper describing the issue, background information, needs and concerns, and options from their perspective. The Level Two decision-makers will meet, discuss the issue(s), and seek

consensus resolution. The Agency that seeks resolution also may schedule a joint briefing of all relevant Agencies.

3. Level Three: If consensus is not reached by the Level Two officials within 30 working days of receipt of the written notice of dispute, the Agencies involved in the dispute will elevate the matter to the principal policymakers at headquarters for the respective Signatories (Level Three contacts identified in Section IX), who will endeavor to resolve the issue(s) within 30 working days.

4. The Agencies involved in the dispute will include appropriate agency expertise, including NEPA experts, in the discussions and use a discussion format that provides for orderly and direct communication and consideration of the range of agency perspectives.

5. The above time limits may be extended by written agreement of the parties to the dispute. The Agencies involved in the dispute may employ agency dispute resolution services to assist in the resolution of the dispute. States or tribal governments may participate in discussions to resolve the matter with the consent of all the parties to the dispute.

VIII. ADMINISTRATIVE PROVISIONS

A. Nothing in this MOU is intended or will be construed to limit, expand, or affect in any way the authority or legal responsibilities of the Agencies.

B. Nothing in this MOU may be construed to obligate the Agencies or the United States to any current or future expenditure of resources in advance of the availability of appropriations from Congress. Nor does this Agreement obligate the Agencies, or the United States, to spend funds on any particular project or purpose, even if funds are available.

C. The mission requirements, funding, and staffing of the Agencies may affect their ability to fully implement all of the provisions of this MOU.

D. Specific activities that involve the transfer of money, services, or property between or among the Agencies (1) will require execution of separate agreements or contracts, (2) will be contingent upon the availability of funds, and (3) must be independently authorized by appropriate statutory authority. This MOU does not provide such authority. Negotiation, execution, and administration of each such agreement must comply with all applicable statutes and regulations.

E. The Signatories and their respective Agencies and offices will handle their own activities and utilize their own resources, including the expenditure of their own funds, in pursuing these objectives. Each Agency will carry out its separate activities in a coordinated and mutually beneficial manner.

F. Nothing in this MOU is intended or will be construed to restrict the Signatories or the Agencies from participating in similar activities or arrangements with other public or private agencies, organizations, or individuals.

G. This MOU is not intended to, and does not, create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

H. Any information furnished between the Agencies under this MOU may be subject to the Freedom of Information Act, 5 U.S.C. § 552, *et seq.*, including provisions for interagency consultation with the originating agency before making a direct FOIA response.

I. All press releases and public statements issued by the Signatories concerning or characterizing this MOU will be jointly reviewed and agreed to by delegated staff representing each of the undersigned Signatories.

J. This MOU may be amended or modified only through written agreement among all of the Agencies, signed by the Secretaries and Administrator or their respective delegees. Other Federal and state agencies may become signatories to this MOU with the written consent of all the Agencies.

K. In addition to the annual review in Section X.B, the Signatories will review this MOU at least every five (5) years for adequacy, effectiveness, and continuing need.

L. The Agencies will comply with FACA (5 U.S.C. Appendix 2) to the extent it applies.

IX. PRINCIPAL CONTACTS

Each Signatory hereby designates the following Federal employees as the principal contacts regarding this MOU. The contacts may be changed through written notice to each Signatory.

	Level One	**Level Two**	**Level Three**
BLM	State Director	Bureau Director	Assistant Secretary
EPA	Regional Division Director	Regional Administrator	Assistant Administrator
FS	Regional Forester	Chief	Under Secretary
FWS	Associate Director	Bureau Director	Assistant Secretary
NPS	Associate Director	Bureau Director	Assistant Secretary

X. MOU TERM, IMPLEMENTATION, AND APPLICABILITY

A. *Effective Date and Term.* This MOU is effective on the date of the last approving Signatory's signature. This MOU will remain in effect unless amended or terminated.

B. *Implementation.* Within 90 days of the effective date, BLM, EPA, FS, FWS, and NPS will coordinate to:

- Develop Agency and joint plans for implementing and disseminating this MOU,
- Develop appropriate joint training efforts and materials, and
- Designate national senior level managers to oversee implementation of this MOU.

The designated senior level managers will approve the MOU implementation plans. They will meet annually to confirm the effectiveness of the MOU and discuss and document any challenges, concerns, or opportunities for improvement.

C. *Applicability.*

1. This MOU applies to all NEPA analyses commencing after the effective date, as provided in Section V.B.

2. This MOU applies to on-going NEPA analyses for which a draft NEPA document (e.g., draft EIS, completed EA / unsigned FONSI) will not be issued for public review within 90 days following the effective date of the MOU. However, the provisions of Section V.H. are not available to NEPA analyses if the MOU procedures have not been followed.

3. The Agencies also will consider applying the MOU to on-going NEPA analyses where comments on the draft have questioned the adequacy of the air quality or AQRVs analysis, if such analysis can be accomplished in a cost-effective and timely manner.

D. *Termination.* This MOU will be terminated when it is no longer required. In addition, a Signatory may terminate participation in this MOU 90 days after providing written notice to the other Signatories.

XI. SIGNATURES

By: _____ Date: JUN 23 2011
KATHLEEN A. MERRIGAN
DEPUTY SECRETARY
DEPARTMENT OF AGRICULTURE

By: _____ Date: JUN 23 2011
DAVID J. HAYES
DEPUTY SECRETARY
DEPARTMENT OF THE INTERIOR

By: _____ Date: JUN 23 2011
BOB PERCIASEPE
DEPUTY ADMINISTRATOR
ENVIRONMENTAL PROTECTION
AGENCY

Attachments:
Appendix:

- Modeling Approaches to Evaluate Air Quality for NEPA Decisions Regarding Federal Oil & Gas
- Modeling Approach Tables for Oil & Gas Development through the NEPA Process
- Overview Matrix Of Air Quality Model Characteristics

Concept Paper – Overview and Example Design of a Reusable Modeling Framework for Air Quality Modeling

APPENDIX TO MEMORANDUM OF UNDERSTANDING AMONG THE U.S. DEPARTMENT OF AGRICULTURE, U.S. DEPARTMENT OF THE INTERIOR, AND U.S. ENVIRONMENTAL PROTECTION AGENCY, REGARDING AIR QUALITY ANALYSES AND MITIGATION FOR FEDERAL OIL AND GAS DECISIONS THROUGH THE NEPA PROCESS

(06/20/11)

MODELING APPROACHES TO EVALUATE AIR QUALITY FOR NEPA DECISIONS REGARDING FEDERAL OIL & GAS

The purpose of this Appendix is to provide information when modeling is required by Section V.E.3.c of the Memorandum of Understanding (MOU). Section V.A of the MOU says "The analysis of impacts to air quality and AQRVs will be conducted in accordance with current technical standards, guidance, and practices and will be used to inform the decision-maker, Agencies [BLM, EPA, Forest Service, FWS, and NPS], and the public." Section V.D. of the MOU says "[c]onsistent with NEPA and its implementing regulations, the Lead Agency will complete and document supporting air quality and AQRVs analyses prior to Federal oil and gas planning, leasing, or field development decisions."

Modeling is required when criteria described in MOU Section V.E.3 are met. This appendix provides general direction on approaches, models, and underlying principles to accomplish technical tasks while encouraging and optimizing resource efficiencies. Initially some of the modeling efforts may require additional investments. However, the outlined approaches encourage, to the maximum extent practicable, the reuse of pre-existing major modeling components and data to reduce overall resource commitments over time.

The Appendix is comprised of this introduction, and these two additional components:

- Two tables (A and B) of general air quality analysis approaches for a variety of conditions (*e.g.,* planning phase, data quantity/quality, and potential air quality impacts); and
- A matrix summarizing characteristics of currently available air quality models, applicability, and references (Overview Matrix Of Air Quality Model Characteristics).

Also attached is a concept paper describing a Reusable Modeling Framework, which provides an example of a complex air quality modeling system designed for multiple uses.

Consistent with the provisions of Section V. of the MOU, the Lead Agency selects the appropriate air quality models and technical approaches. Nevertheless, the Lead Agency must collaborate and engage the Agencies and technical workgroups, if convened, in selecting air quality models and technical approaches (see MOU Sections V.A., V.C. and V.E.1.). Early use of the approaches outlined in this Appendix will assist in making air quality modeling more efficient, effective, and save time and expense.

NOTES: (1) If the Lead Agency cannot complete necessary quantitative analyses (e.g. if a reasonably foreseeable number of wells cannot be determined, see MOU Section V.E.1), the Lead Agency should follow the procedures in MOU Section V.D. (2) This Appendix supports implementation of the MOU and does not supersede the provisions and process established in the MOU. (3) If disputes arise about application of the Appendix, follow the MOU dispute resolution provisions (Section VII). (4) This Appendix may be updated to reflect current knowledge and science as provided in the MOU.

The following tables describe various analysis approaches:

- Table A is used when the Lead Agency has determined a reasonably foreseeable number of wells utilizing limited or general information. The number of wells or associated emissions can be expressed as a range (*e.g.,* low, medium, high).
- Table B is used when the Lead Agency has determined a reasonably foreseeable number of wells (*e.g.,* specific number and location).

Table A. Consult this table when:		
A reasonably foreseeable number of oil or gas wells and associated emission inventory has been developed, utilizing limited or general information; the reasonably foreseeable number of wells and associated emissions are expressed as a range (*e.g.*, low, medium, high).		
Long Range Transport Assessment Approach	**'Add-on' Photochemical Approach**	**Local Assessment Approach**
When: Actions that contain single (or small group) source scenarios. Conducive to providing regional assessments of cumulative and incremental impacts. Transport distances greater than 50km.	***When:*** Actions that contain large scale source scenarios. Conducive to providing regional assessments of cumulative and incremental impacts.	***When:*** Actions likely to result in local air quality impacts. Transport distances less than 50km.
Description: Conduct modeling with estimates of emissions and estimated meteorological and geographic information for single or small groups of sources. This analysis may be used for new projects or proposals that lack specific development information but contain source scenarios that warrant additional review. This approach utilizes EPA guideline approved models for near (local) and far-field analysis. Models tend to be specific to an AQ pollutant, approved purpose, and regulatory application. Impact estimates are generated for ambient concentration, atmospheric deposition, and AQRVs. ***Note:*** Additional narrative may be necessary to describe how uncertainties affect air quality impact estimates.	***Description:*** Conduct regional scale modeling with estimates of emissions and estimated meteorological and geographic information with complex photochemical processes. This analysis may be used for new projects or proposals that lack specific development information but contain large scale or complex photochemical source scenarios that warrant additional review. For this approach, reasonable estimates of incremental emissions are reentered into an existing photochemical modeling system to fully assess impacts based on reasonably foreseeable scenarios. ***Note:*** Additional narrative may be necessary to describe how uncertainties affect air quality impact estimates.	***Description:*** Conduct local scale modeling analysis with emission estimates, meteorological, and geographic information for single sources. May be used when local AQ impact potential is great. Must consider the uncertainties associated with running near-field models with limited or general information. ***Note:*** Additional narrative is likely to be needed to describe air quality issues, emission uncertainties, and their affects on estimated impacts. Commitment to complete additional analysis may be necessary when requisite information becomes available.
Models*: Long range transport models such as CALPUFF, SCIPUFF	***Models**** Photochemical models such as CMAQ, CAMX	***Models****: AERMOD / AERSCREEN, VISCREEN, PLUVUE II, CALPUFF
Maximizing resources, time, and costs: Lead Agencies are encouraged to develop and utilize modeling methods that promote optimal resource efficiencies. Early planning often can result in datasets (meteorology, emissions, etc…), modeling systems, and analysis outputs that can be applied to a broad range of agency actions requiring air quality models. Reusing aspects of air quality modeling results in substantial time and cost savings, especially with repetitive similar applications. Early modeling considerations substantially reduce modeling development requirements in all subsequent project development phases. Modeling systems that evaluate varied growth patterns (expressed in the form of low, medium, and high) offers reuse potential for both results and modeling systems. An example of a Reusable Modeling Framework (RMF) with emphasis on growth patterns using a complex photochemical model is found in the RMF example attached to this Appendix. The RMF concept could be applied to additional models, domains, and agency actions. MOU Section V.E.4.b describes criteria to eliminate air quality modeling requirements based on availability of existing modeling.		

**An overview of model characteristics can be found in the following Matrix of Air Quality Modeling Characteristics.*

Table B: Consult this Table When

A reasonably foreseeable number of oil or gas wells (*e.g.*, specific number and location) and associated emission inventory has been developed.

Dispersion Model Approach	'Add on' Photochemical Approach
When: For criteria pollutants, toxics/HAPs, AQRVs (FLAG), small-medium scale & number of sources, EPA guideline (regulatory), screening & refined modeling options.	***When:*** Projects or plans with large geographic extent, large number of sources, or present complex issues with ozone and secondary particulate impacts.
Description: Conduct modeling with project specific emission, meteorological, and geographic information. This approach recommends EPA guideline models, or alternative models that meet Appendix W guidelines on model applications for near (local) and far-field analysis. Models tend to be specific to an AQ pollutant, approved purpose, and regulatory application. Impact estimates are generated for ambient concentration, atmospheric deposition, and AQRVs. Although these models make up the primary air quality modeling tool chest, most do not handle complex scenarios, advanced chemical reactivity, or large numbers of sources commonly associated with regional scale oil & gas development. This modeling approach is the current state-of-practice and is likely for most project specific AQ impact assessments. Re-use of domains, meteorology, and file configuration minimizes resources and costs.	***Description:*** Conduct regional scale modeling with project specific emission, meteorological, and geographic information with complex photochemical processes. This approach utilizes a regional scale 'one atmosphere' simulation of a wide variety of AQ pollutants with a large geographic extent. Emissions are gridded, allow for chemical transformation, and offer a variety of transportation mechanisms to address near and far-field transport. Impact estimates are generated for ambient concentration, atmospheric deposition, and AQRVs. 'Add on' means to insert project specific incremental emission estimates into an existing regional scale modeling system. Re-use of existing baseline inventories, meteorology, and model setup greatly reduce resources necessary for model application. The 'Add on' photochemical approach is anticipated to become the state-of-practice in coming years.
Models*: AERMOD / AERSCREEN, VISCREEN, PLUVUE II, CALPUFF, SCIPUFF	***Models*:*** CMAQ, CAMX

Maximizing resources, time, and costs: Lead Agencies are encouraged to develop and utilize modeling methods that promote optimal resource efficiencies. Early planning often can result in datasets (meteorology, emissions, etc…), modeling systems, and analysis outputs that can be applied to a broad range of agency actions requiring air quality models. Reusing aspects of air quality modeling results in substantial time and cost savings, especially with repetitive similar applications. Early modeling considerations substantially reduce modeling development requirements in all subsequent project development phases. Modeling systems that evaluate varied growth patterns (expressed in the form of low, medium, and high) offers reuse potential for both results and modeling systems. An example of a Reusable Modeling Framework (RMF) with emphasis on growth patterns using a complex photochemical model is found in the RMF example attached to this Appendix. The RMF concept could be applied to additional models, domains, and agency actions. MOU Section V.E.4.b describes criteria to eliminate air quality modeling requirements based on availability of existing modeling.

******An overview of model characteristics can be found in the following Matrix of Air Quality Modeling Characteristics.*

OVERVIEW MATRIX OF AIR QUALITY MODEL CHARACTERISTICS

	Near Field (<50km)			Long Range Transport (>50km) & Photochemical Models		
	AERSCREEN	**VISCREEN/PLUVUE II**	**AERMOD**	**CALPUFF**	**SCIPUFF****	**CMAQ/CAMX**
Description	A conservative single-source *screening* model based on AERMOD for NAAQS and PSD permitting.	Plume blight models for AQRVs and PSD permitting. Visual impacts are estimated by detailing change in color and contrast along a specific view.	*Refined* single/cumulative regulatory model for NAAQS, toxics, and PSD. Used for non-reactive criteria pollutants.	*Refined* long range transport model for AQRVs, NAAQS, and PSD Increment. Contains simplified chemical processes.	*Refined* (alternative) long range model for NAAQS and PSD Increment. Contains more advanced chemical processes.	*Refined* photochemical model with full chemistry. Urban to regional scale model capable of single source or cumulative impact assessments.
Advantages	Quick, easy to setup, and simple operation.	VISCREEN: Quick, easy operation and results. PLUVUE II: Complex blight analysis.	Most widely accepted regulatory model. Extensive documentation/guidance for appropriate use.	Ability to simulate pollutant transport that varies in time and space. Addition of simple chemistry and deposition.	Ability to simulate pollutant transport that varies in time and space. Addition of advanced chemistry.	Primary models for ozone and secondary particulate matter impact. Includes most realistic chemistry.
Disadvantages	Conservative modeling assumptions and results.	Single purpose models with lack of robust guidance.	Not suitable for ozone or AQRV impact analyses.	Numerous model control options, difficult validation, and long run times.	Not widely available and not extensively documented.	Complex setup and operation. Advanced computing requirements.
Required computer resources	Light (laptop)	Light (laptop)	Light/Moderate (PC)	Moderate (robust PC)	Moderate (robust PC)	Heavy (UNIX, cluster)
Required model input data	Pre-set meteorology.	Pre-set meteorology or National Weather Service observations.	National Weather Service or on-site observations.	3-Dimension meteorology	3-Dimensional meteorology	3D meteorology, heavy emissions processing.
Range of costs*	In-house to minimal	In-house / $10K - $75K	$10K – $30K	$10K - $50K	$10K - $75K	$50K - $100K
Factors affecting costs	None	None/Multiple runs	runtime	Meteorology, runtime	Meteorology, runtime	Multiple inputs, runtime
Time to set up, run model	Minutes	Minutes / 1-2 weeks	1-2 Weeks	Days to weeks	Weeks	Weeks to months
Model Developer	EPA	EPA/EPA	EPA	TRC	Lakes Environmental	EPA/Environ
Background, references	40CFR51AppxW	FLAG, 40CFR51AppxW	40CFR51AppxW	FLAG, 40CFR51AppxW	Private	EPA SIP guidance

* **Does not include development of baseline emissions (present or future), meteorological inputs, or contract management. Initial development costs may be more.**

** **SCIPUFF is considered an alternative model under 40 CFR 51 Appx. W but may be considered for long range transport use on a case-by-case basis.**

OVERVIEW AND EXAMPLE DESIGN OF A REUSABLE MODELING FRAMEWORK FOR AIR QUALITY MODELING

Note to Readers: *This example of an 'Add-on' air quality modeling approach is intended to highlight a strategy for the development of air quality modeling products that can be used at the various stages in National Environmental Policy Act (NEPA) documents (refer to Modeling Approach Tables (Tables A and B) in the MOU Appendix). This framework is not intended to be prescriptive, but an example that could be adapted to reflect project specific information.*

This framework is intended to promote the development of air quality modeling analysis in a manner that reduces overall resource expenditures through reuse of data, modeling systems, or results. With early consideration, modeling systems can generate input datasets or become the foundation of future applications with simple modification. In some situations, an existing modeling analysis may fulfill the requirements of the MOU that states: 'Modeling will not be required…[i]f EPA and the Agencies whose lands are affected concur (in writing or by electronic transmission) that: an existing modeling analysis addresses and describes the impacts to air quality and AQRVs for an area under consideration, and the analysis can be used to assess the impacts of the proposed action.' (Section V.E.4.b).

Conceptual Description

For the purposes of this document, a Reusable Modeling Framework (RMF) refers to an existing air quality modeling analysis with underlying emission inventories, regional meteorology, and appropriate growth factors (oil/gas emissions) that are considered applicable to a new or modified project proposal. It may be possible to infer potential impact(s) for a new or modified project without the need for additional air quality analyses, as described in the following example.

In this example, an RMF is designed to work in conjunction with a regional scale photochemical model to evaluate potential impacts for criteria pollutant National Ambient Air Quality Standards (NAAQS) of concern (focused primarily upon a cumulative regional assessment of ozone and secondary particulate) and air quality related values (AQRV's). This RMF is most appropriate when specific numbers, size, and location of development are not well known for a proposed project, typically at the resource management plan (RMP), forest plan (FP), or leasing stage. These proposals often include large scale planning and leasing decisions that have potential to affect distant air quality values. However, a RMF can be adapted for additional models, approaches, and scale.

This RMF uses emissions sensitivities analyses to bracket potential impacts from future growth scenarios. If the emission projections for a stage of a new or modified project falls within the range of emissions growth used in prior sensitivity analyses, then existing modeling potentially satisfies analysis needs without having to perform additional air quality modeling.

Example Design:

This RMF suggests that regional air quality assessments for both base year and future years be conducted at predetermined intervals. These intervals usually occur, at a minimum, every three (3) years corresponding to the cycle of the development by EPA's national emission inventory (NEI). To maximize quality and representativeness, this RMF could leverage existing national, regional, and state/local emission databases. New base and future year modeling may be necessary prior to the next 3 year interval if regional development exceeds emissions growth projections for that planning period.

The regional air quality assessments may be conducted on a multistate basis to encompass nearby states to ensure complete airshed coverage. Grid resolution should adequately represent the geophysical characteristics of the domain and anticipated development.

For future year emissions, projections should be made from the base year to 10-15 years forward to examine the potential for maximum growth in the planning area. Emissions projections for non-oil and -gas emission sectors potentially can be leveraged from existing inventory databases. Examples may include: regional planning organizations (RPO's), States, or EPA databases. For the oil and gas sector (O&G), emission growth estimates over the future year baseline should be estimated to characterize the potential range in growth. Future year growth estimates should examine the potential for low, medium, and high development based on the anticipated regional growth.

Emission sensitivities can be conducted using methods developed by the photochemical modeling community. The most straight forward method to address emission sensitivities uses photochemical modeling runs to examine incremental growth in the O&G sector. This approach is often referred to as the "brute force method" which examines the impact of emission growth through successive model runs showing impacts from alternative growth scenarios (e.g., High, Medium, and Low). Other probing techniques, which are more sophisticated, allow for the development of area specific source-receptor relationships. Examples include the Response Surface Methods (RSM), as developed from iterative model runs, and the Direct Decoupled Method (DDM), as developed within a particular photochemical model. RSM provides model sensitivity estimates across a wide range of emission changes, but is costly due to need for numerous iterations of the photochemical model. DDM allows for model sensitivity estimates for small emission changes (*e.g.*, 10% - 20%) without having to rerun the model for each scenario, but is costly due to large upfront development.

Table 1 - Reusable Data Products

Category	BASE YEAR	FUTURE YEAR
Meteorology	Base Year (corresponds to 3-YR NEI baseline)	Base Year
Emissions Modeling	3-YR NEI	10 – 15 year projection
Basecase Analysis	Base Year Performance	NA
Emissions Sensitivity Analyses (Photochemical	NA	O&G Growth Scenario (Low, Medium, and High)

EXAMPLE SCOPE OF WORK

Task 1. Preparation of Work Plan

A work plan shall be prepared that provides details of the modeling effort and approach.

Task 2. Development of Comprehensive Modeling Protocol

In this subtask, the Contractor will develop a modeling protocol which addresses the development of meteorological, emissions, and air quality modeling for this project. The Contractor will prepare a draft protocol for review by participating agencies. Upon receipt of comments, the Contractor will coordinate with the responsible organization to incorporate comments as warranted and submit a final modeling protocol to all study participants.

The modeling protocol will describe in detail how the air quality modeling inputs will be developed. The protocol shall address, at a minimum, the following:

1. Numerical meteorological model configuration including the following:
    - Horizontal and vertical model domain configuration
    - Physics options selection
    - Data sources for initial and boundary condition development
    - Four dimensional data assimilation (FDDA) strategy
2. Numerical meteorological performance evaluation methods
3. Emissions database development including:
    - Data sources for inventory development
    - Growth factor development
    - Oil and Gas Sector Development Scenarios
4. Base Year Air Quality Modeling Simulations
    - Processing of numerical meteorological fields
    - Initial and boundary condition development
    - Photolysis rate development
    - Photochemical model configuration and option selection
5. Base Year Air Quality Model Performance Evaluation
6. Emissions Sensitivity Scenarios for Future Oil and Gas Development Scenarios
    - Air quality model methods (“brute force” or model probing tools.)

The deliverables for this task will include a draft and final modeling protocol submitted to the responsible organization and participants.

Task 3a. Annual Meteorological Modeling Simulation

For this subtask, the Contractor will develop a numerical meteorological model fields necessary to support regional scale air quality modeling recommended under the MOU. Meteorological fields will be developed in accordance with details outlined in the protocol developed under Task 2 of this project.

Deliverables under this subtask will include hourly numerical meteorological model fields for specified domains that can be used for development of meteorological inputs for photochemical modeling.

Task 3b. Meteorological Model Performance Evaluation

For this subtask, the Contractor will conduct a statistical performance evaluation of the numerical meteorological fields using methods and metrics described in Emery et al. (2001) and Tesche et al. (2002). The statistical performance evaluation will be conducted in accordance with details outlined in the protocol developed under Task 2 of this project.

The deliverable under this subtask will include a report documenting the evaluation of performance of the numerical weather model.

Task 3c. Process Numerical Meteorological Fields for Input into Photochemical Model

The purpose of this subtask is to provide meteorological inputs for the photochemical modeling platform and period(s) delineated in the protocol under Task 2 of this project. The Contractor will (1) process the numerical meteorological model data through the appropriate meteorological preprocessor for input into the photochemical, including subdomains identified in the protocol under Task 2; (2) quality assure (QA) meteorological inputs and results of vertical layer aggregation; and (3) document methods and QA results, and instructions for future processing of meteorological data.

The deliverables of this subtask are (1) the processed meteorological fields; (2) preprocessor run scripts; (3) the results of QA measures and log files from meteorological preprocessor; and (4) a report describing the approach and instructions for reproducing the preprocessing and analysis of meteorological fields for preparation as input to photochemical models.

Task 4. Development of Emissions

The purpose of this task is to create emissions inputs for use in the photochemical model identified under Task 2 of this project. Emissions will be developed for the modeling domain(s) determined under Task 2 for at least a 12-month consecutive period corresponding to the most current national emission inventory (NEI) baseline period.

For this task, the Contractor will (1) create speciation input files, emissions surrogate data, and landuse data appropriate for the photochemical model; (2) run SMOKE processors needed for photochemical platform specific emissions; (3) quality assure SMOKE outputs, correct and rerun as needed; and (4) document all processing steps, processing and data decisions, and provide an interim report on photochemical model emission inputs.

Emissions will be developed for the following:

1. Actual baseyear emissions (corresponding to most current NEI baseline year) for purposes of air quality model performance evaluation
2. “Typical” baseyear emissions for development of future year emissions projections

3. Future year emissions
4. Future year emissions with Oil and Gas Sector emissions growth scenarios

Task 5a. Base Year Air Quality Model Simulations

The purpose of this subtask is to create a suitable baseyear modeling analysis that can serve as a platform to assess potential air quality impacts from future development scenarios. The Contractor will (1) use meteorological and emissions inputs created under Subtasks 3c and 4; (2) create initial and boundary condition (IC/BC) and photolysis rates data for input.

Deliverables for this subtask will include (1) all input data files (meteorology, emissions, IC/BC, photolysis); (2) all base base model output data files; and (3) model run scripts and log files created for completion of this task.

Task 5b. Base Year Performance Evaluation

The purpose of this subtask is to evaluate photochemical model performance for ozone and its precursor data (where available) and speciated fine particulate matter in order to achieve reasonable baseyear model performance for development of future year emissions. The Contractor will (1) acquire all observational data sets (IMPROVE, STN, CASTNET, and SLAMS/NAMS ozone) to conduct performance analysis; (2) conduct a phenomenological and statistical performance evaluation of base year simulations; and (3) document results of performance analysis.

Deliverables for this subtask include (1) an interim report documenting final model configuration, outstanding issues not resolved from subtask 5b; (2) further recommendations for baseyear model performance improvement; (3) model performance analyses and results; (4) final datasets and software used to conduct model performance evaluation; and (5) documentation on how to perform analyses.

Task 6. Future Year Emissions Sensitivity Scenarios

The purpose of this task is to complete emissions sensitivity analyses for future development scenarios for the oil and gas sector consistent with the goals of MOU to provide a basis for describing future development projects within the airshed. Emissions sensitivity analyses will use model techniques and probing tools described in the protocol developed under task 2 of this project. The Contractor will (1) develop model ready emissions inputs from the future year inventory developed under Task 4 of this project; (2) develop model emission ready emission based upon projections for oil and gas growth scenarios to conduct sensitivities of future oil and gas development; (3) conduct air quality simulations for oil and gas emissions sensitivities using methods described in the protocol developed under Task 2 of the project; and (4) develop final documentation suitable for use as a technical support document for future resource development plans with emissions projections consistent with the emission ranges assumed for future year development scenarios.

Deliverables for this task include (1) a final report documenting future year emissions sensitivities; (2) documentation of methods for all model inputs and run scripts; and (3) all model output from emissions sensitivity scenarios.

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APPENDIX ROD-C

BIOLOGICAL OPINION

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United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

January 21, 2011

In Reply Refer To:
FWS/R6
ES/UT
6-UT-11-F-001
10-F-0340

Robert MacWhorter
Forest Supervisor
Dixie National Forest
1789 N. Wedgewood Lane
Cedar City, Utah 84721-7769

RE: Final Biological Opinion for the Oil and Gas Leasing Project on the Dixie National Forest

Dear Mr. Macwhorter,

We received your request for consultation on November 26, 2010. This document transmits our final biological opinion for your proposed Oil and Gas Leasing Project on the Dixie National Forest, Utah, and effects on the Utah prairie dog (*Cynomys parvidens*), California condor (*Gymnogyps californianus*), and Mexican spotted owl (*Strix occidentalis lucida*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.) and the Interagency Cooperative Regulations (50 CFR §402).

This biological opinion is based on information provided in the November 23, 2010 Oil and Gas Leasing Biological Assessment (BA); telephone conversations and email correspondence between our offices; and other sources of information.

Consultation History

This section summarizes significant steps in the consultation process:

- September 10, 2010; we received a BA from the Dixie National Forest with a request to initiate informal consultation.
- October 9, 2010; we met with the Dixie National Forest to discuss new information regarding listed species and effects of the proposed action.
- October 15, 2010; we received a letter from the Dixie National Forest retracting the original BA.

- November 9, 2010; we met with biologists from your office to discuss the draft BA.
- November 26, 2010; we received the final BA from the Dixie National Forest request to initiation of formal consultation.

A complete administrative record for this project is on file in our office.

BIOLOGICAL OPINION / CONFERENCE OPINION

Table of Contents

1.0 Description of Proposed Action

The proposed action includes opening all potentially productive areas (except those areas that are withdrawn—see Attachment 1 (Dixie National Forest 2008, Chapter 2, Figures 2.5-3a, 2.5-3b, 2.5-3c, and 2.5-3d) within the Dixie National Forest to oil and gas leasing. The Reasonably Foreseeable Development Scenario (RFDS) projects that a maximum of 60 oil and gas wells will be drilled over the next 15 years as a result of leasing.

There are three phases associated with oil and gas development: seismic exploration, exploratory wells, and production. Seismic activities are estimated to disturb 0.6 acres/mile over 700 miles. Therefore, the total area associated with seismic activities over the life of the project is estimated to be 420 acres. There are two methods generally used for conducting seismic surveys: vibroseis and explosives. Vibroseis is comprised of a large truck equipped with vibrator pads which are lowered to the ground surface where they emit high frequency vibrations. The vibroseis method will be typically restricted to existing roads on Forest Service lands (USFS 2010). The explosive method involves drilling small holes where the explosive charges are placed into, covered, and then detonated. The explosive method may be done via helicopter or off-road buggies. Seismic activities are considered to be temporary actions because they can occur in a short amount of time (less than one year) and leave little trace on the landscape.

Exploratory well development involves leveling 5.9 acres to serve as the well pad and constructing a road (an additional 4.2 acres) to access the well pad. In addition, approximately 6.6 acres (3.92 miles by a 13-foot wide running surface) of existing roads may need to be upgraded to accommodate oil and gas traffic. In total, approximately 16.7 acres will be directly disturbed for every new exploratory well. Total disturbance associated with this phase is 1,002 acres. Any well that is not productive will be reclaimed, which includes recontouring the well pad and access road, replacing topsoil, and seeding the area. Exploratory well development is considered to be long-term as the life of a well extends beyond one breeding season.

The RFDS projects one of the 60 exploratory wells will lead to the oil field development production phase. This phase will include constructing 19 additional wells for production (in addition to the one exploratory well that was productive). Surface disturbance associated with each of these production wells is estimated to be approximately 9.3 acres per well pad (including access road and well pad). Total surface disturbance associated with a production field is 253.9 acres, including:

- 176.7 acres for well pads and access roads
- 12 acres for a central production facility
- 9 acres for a water disposal well
- 0.5 acre for a truck loading facility
- 25 acres for overhead power lines
- 0.4 acre for electric substation
- 30.3 acres for pipelines

The production phase is long-term and is expected to last for 30 years.

1.1 Description of Action Area

The action area for this biological opinion includes the entire Dixie National Forest, including 4 ranger districts: Pine Valley, Cedar City, Powell, and Escalante. The action area also includes all of Cedar Breaks National Monument. For the Utah prairie dog, the Awapa and Paunsaugunt recovery units fall within the action area. For the Mexican spotted owl, approximately 18,000 acres of critical habitat unit CP-12 fall within the action area and the entire action area is within the Colorado Plateau Recovery Unit. The Pine Valley Ranger District contains California condor where the species is listed as federally endangered (west of I-15); within rest of the action area, the California condor is considered as a non-essential, experimental population.

For more information regarding the proposed action, please refer to the final BA (Dixie National Forest 2010).

1.2 Applicant Committed Conservation Measures

Lease areas that may contain habitat for threatened or endangered species will have the following lease notices attached.

1.2.1 Lease Notice—Utah Prairie Dog

The lessee/operator is given notice that lands in this lease may contain historic and/or occupied Utah prairie dog habitat, a threatened species under the Endangered Species Act. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs when prairie dogs are active or hibernating. A temporary action is completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one activity/hibernation season and/or causes a loss of Utah prairie dog habitat or displaces prairie dogs through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage.

Current avoidance and minimization measures include the following:

1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s) approved by the Forest Service (i.e., needs to have passed the USFWS Utah Prairie Dog survey course).
2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.
3. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in prairie dog habitat.

4. Surface occupancy or other surface disturbing activity will be avoided within 0.5 mile of active prairie dog colonies.
5. Permanent surface disturbance or facilities will be avoided within 0.5 mile of potentially suitable, unoccupied prairie dog habitat, identified and mapped by Utah Division of Wildlife Resources.
6. The lessee/operator should consider if fencing infrastructure on well pad, e.g., drill pads, tank batteries, and compressors, would be needed to protect equipment from burrowing activities. In addition, the operator should consider if future surface disturbing activities would be required at the site.
7. Within occupied habitat, set a 25 mph speed limit on operator-created access roads and adhere to speed limits on maintained roads. The speed limit may have to be revisited on a site-specific basis and reduced.
8. Limit disturbances to and within suitable habitat by staying on designated routes.
9. Limit new access routes created by the project.
10. Unavoidable impacts to the species will be mitigated through site specific consultation with the USFWS.

Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

1.2.2 Lease Notice—Mexican Spotted Owl

The Lessee/Operator is given notice that the lands in this lease contain suitable habitat for Mexican spotted owl, a federally listed species. Insert the following sentences if lease contains Designated Critical Habitat: *[The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298).]* Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage.

Current avoidance and minimization measures include the following:

1. Surveys following Forest Service approved protocol will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s).
2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project

activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat.

   a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat.
   b. Document if action is temporary or permanent.

3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.
4. Produced water will be managed to ensure maintenance or enhancement of riparian habitat.
5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting.
6. For all temporary actions that may impact owls or suitable habitat:
   a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey.
   b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season.
   c. Rehabilitate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc.
7. For all permanent actions that may impact owls or suitable habitat:
   a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities.
   b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC).
   c. Avoid drilling and placing permanent structures within 0.5 mi of suitable habitat as identified by the Forest Service.
   d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims.
   e. Limit disturbances to and within suitable habitat by staying on approved routes.
   f. Limit new access routes created by the project.

Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

1.2.3 Lease Notice—California Condor

The Lessee/Operator is given notice that the lands located in this parcel contain potential habitat for the California condor, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease if the area is known or suspected to be used by condors. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether

it occurs within or outside potential habitat. A temporary action is completed prior to the following important season of use, leaving no permanent structures and resulting in no permanent habitat loss. This would include consideration for habitat functionality. A permanent action continues for more than one season of habitat use, and/or causes a loss of condor habitat function or displaces condors through continued disturbance (i.e. creation of a permanent structure requiring repetitious maintenance, or emits disruptive levels of noise).

The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage.

Current avoidance and minimization measures include the following:

1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s) approved by the USFS, and must be conducted according to approved protocol.
2. If surveys result in positive identification of condor use, all lease activities will require monitoring throughout the duration of the project to ensure desired results of applied mitigation and protection. Minimization measures will be evaluated during development and, if necessary, section 7 consultation may be reinitiated.
3. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season.
4. Temporary activities within 0.5 miles of established roosting sites or areas will not occur during the season of use, August 1 to November 31, unless the area has been surveyed according to protocol and determined to be unoccupied.
5. No permanent infrastructure will be placed within 1.0 mile of nest sites.
6. No permanent infrastructure will be placed within 0.5 miles of established roosting sites or areas.
7. Lessee is responsible to remove big game carrion to 100 feet from lease roadways occurring within foraging range as feasible in coordination with the UDWR and the Forest Service. Carrion will become an unnecessary attractant.
8. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.

Additional measures may also be employed to avoid or minimize effects to the species between the lease sale and lease development stages. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the Endangered Species Act.

2.0 Status of the Species / Critical Habitat

The purpose of this section is to summarize the best available information regarding the current range wide status of threatened and endangered species. Additional information regarding these species are contained in the administrative record for this consultation and from the sources of information cited for each species.

2.1 Utah Prairie Dog

The range-wide status of the Utah prairie dog consists of information on its listing history, species account, life history and population dynamics, status and distribution, and recovery units and efforts. This information is provided as an attachment to this biological opinion (Attachment 2).

2.2 Mexican Spotted Owl

2.2.1 Species / Critical Habitat Description

The Mexican spotted owl (*Strix occidentalis lucida*) is one of three subspecies of spotted owl recognized by the American Ornithologists' Union (AOU 1957). The other two subspecies are the northern (*S. o. caurina*) and the California spotted owl (*S. o. occidentalis*). The Mexican subspecies is geographically isolated from both the California and northern subspecies.

The spotted owl is mottled in appearance with irregular white and brown spots on its abdomen, back and head. Several thin white bands mark an otherwise brown tail. The spots of the Mexican spotted owl are larger and more numerous than in the other two subspecies, giving it a lighter appearance. *Strix occidentalis* translates as "owl of the west"; *lucida* means "light" or "bright." Unlike most owls, spotted owls have dark eyes.

Adult male and female spotted owls have similar plumage. However, the sexes can be identified by voice and size differentiation. Juveniles, subadults, and adults can be distinguished by plumage characteristics (Forsman 1981; Moen *et al.* 1991). Juvenile spotted owls (hatchling to approximately five months) have a downy appearance. Subadults (5 to 26 months) have pointed rectrices with white tips (Forsman 1981, Moen *et al.* 1991). Rectrices of adult (>27 months) feathers have rounded, mottled tips.

Although the spotted owl is often referred to as a medium-sized owl, it ranks among the largest owls in North America. Of the 19 species of owls that occur in North America, only 4 are larger than the spotted owl (Johnsgard 1988). As a species, the spotted owl averages 41-48 cm (16-19 inches) long (Earhart and Johnson 1970), 107-114 cm (42-45 inches) across the spread wings (Walker 1974), and weighs 547-647 grams (19.5-23 ounces). These measures are expressed as ranges because, similar to other owl species, spotted owls exhibit reversed sexual dimorphism (i.e., females are larger than males).

Critical habitat for the Mexican spotted owl was designated on August 31, 2004 (69 FR 53211). We identified 52 critical habitat units throughout the species range in Arizona, New Mexico, Colorado, and Utah.

The final critical habitat rule identified the Primary Constituent Elements (PCEs) of critical habitat for forested habitats, prey species, and canyon habitats. The forested habitats' PCE was further described as including a range of tree species; a shade canopy; and large dead trees. The prey species PCE was further clarified as including high volumes of fallen trees and other woody debris; a wide range of tree and plant species, including hardwoods; and adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration. The PCEs for canyon habitat include one or more of the following: presence of water (often providing cooler and often higher humidity than the surrounding areas); clumps or stringers of mixedconifer, pine-oak, pinyon-juniper, and/or riparian vegetation; canyon wall containing crevices, ledges, or caves; and high percent of ground litter and woody debris.

2.2.2 Life history and Population Dynamics

Spotted owls have one of the lowest clutch sizes among North American owls (Johnsgard 1988); females lay one to three eggs, two being the most common. Mexican spotted owls breed sporadically and do not nest every year (Ganey 1988). In good years, most of the population will nest, whereas in other years only a small proportion of pairs will nest successfully (Fletcher and Hollis 1994).

Courtship begins in March and eggs are laid in late March or, more typically, early April. Incubation begins shortly after the first egg is laid, and is performed entirely by the female. Female spotted owls generally incubate for approximately 30 days. During incubation, the female leaves the nest only to defecate, regurgitate pellets, or receive prey delivered by the male, who does most or all of the foraging. The eggs usually hatch in early May (Ganey 1988). Females brood their young almost constantly, leaving their nests for only brief periods during the night. Nestling owls fledge from four to five weeks after hatching, from early to mid-June in most cases (Ganey 1988). Owlets often leave the nest before they can fly, simply jumping from the nest onto surrounding tree branches or the ground. Three weeks after leaving the nest owlets can hold and tear up prey on their own, and by late July most have become proficient at pouncing on crawling insects (Forsman *et al.* 1984). The young depend on their parents for food during the summer and will eventually disperse out of the natal area in the fall. Reproductive output varies both spatially and temporally, but may be higher than the California and the Northern spotted owl (Verner *et al.* 1992, Thomas *et al.* 1993).

Forsman *et al.* (1976) described spotted owls as "perch and pounce" predators. They typically locate prey from an elevated perch by sight or sound, then pounce on the prey and capture it with their talons. Spotted owls have also been observed capturing flying prey such as birds and insects (Verner *et al.* 1992). Specific prey groups include: woodrats, mice, voles, rabbits, gophers, bats, birds, reptiles, and arthropods. Spotted owls dwelling in canyons of the Colorado Plateau take more woodrats and fewer birds than do spotted owls from other areas.

Mortality factors include predation, starvation, and accidents. Little is known about how disease and parasites contribute to mortality of spotted owls. Avian predators include great horned owls, northern goshawks, red-tailed hawks, and golden eagles. The extent of predation is unknown; however both juveniles and adults are preyed upon (Willey 1993). Starvation may result from low abundance or availability of prey. Most instances of starvation occurred from late fall

through winter when prey resources were reduced in abundance and availability (Willey 1993). Starvation may also predispose individuals to increased predation. Little data is available on frequency of accidents, and subsequent mortality. Instances of spotted owls being hit by cars have been documented. Owls may also collide with power lines or other obstacles (Service 1995).

Based on limited study information, annual survival rates of adult Mexican spotted owls is 0.8-0.9 and juvenile survival is 0.06-0.29 (Service 1995). Survival estimates may be biased low, but conclude higher survival of adults than juveniles. Available data is either insufficient or has not been analyzed to estimate population trends.

2.2.3 Status and Distribution

The Mexican spotted owl (*Strix occidentalis lucida*) was listed as a threatened species on March 16, 1993 (58 FR 14248). The primary threats to the species were cited as even-aged timber harvest and catastrophic wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the Mexican spotted owl population. We appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (Service 1995).

On August 31, 2004, we designated approximately 8.6 million acres of critical habitat for the Mexican spotted owl in Arizona, Colorado, New Mexico, and Utah, on Federal lands (69 FR 53181). The primary constituent elements provide a qualitative description of physical and biological features necessary to ensure the conservation of the owl in Utah (69 FR 53181). Some of the primary constituent elements for the Mexican spotted owl in Utah (canyon habitat) include one or more of the following: (1) presence of water (often providing cooler temperatures and higher humidity than the surrounding areas); (2) clumps or stringers of mixed conifer, pine-oak, pinyon-juniper, and/or riparian vegetation; (3) canyon walls containing crevices, ledges, or caves; and (4) high percent of ground litter and woody debris.

Although the Mexican spotted owl's entire range covers a broad area of the southwestern United States and Mexico, the Mexican spotted owl does not occur uniformly throughout its range. Instead, it occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Surveys have revealed that the species has an affinity for older uneven-aged forests but also is known to inhabit a physically diverse landscape in the southwestern United States and Mexico. Owls can be found in forested mountains and canyons from southern Utah and Colorado to the mountains of Arizona, New Mexico, western Texas, and into the mountains of northern and central Mexico.

Steep-walled rocky canyonlands provide typical owl habitat within the Utah portion of the Colorado Plateau Recovery Unit. Canyon habitat is used by owls for nesting, roosting, and foraging and includes landscapes dominated by vertical walled rocky cliffs within complex watersheds, including many tributary side canyons. Rock walls must include caves, ledges, and fracture zones that provide protection for nesting and roosting sites. Breeding sites are located below canyon rims; however, it is known that owls use areas outside of canyons (i.e., rims and mesa tops). Owls nest and roost primarily on cliff faces using protected caves and ledges, and forage in canyon bottoms, on cliff faces and benches, and along canyon rims and adjacent lands.

Although it is difficult to rely upon vegetation alone to identify canyon habitat, these areas frequently contain small clumps or stringers of mixed-conifer, ponderosa pine, pine-oak, pinyon-juniper, and/or riparian vegetation (69 FR 53181). Little is known about patterns of habitat use by foraging owls. In Utah, owls have been documented using canyon bottoms and adjacent rims (Willey 1998).

Colorado Plateau canyon habitats in Utah are naturally discontinuous and may explain the patchy locations of owls in the region. A study conducted in Zion National Park found owls nesting and roosting in humid, narrow canyons with dense understories (Rinkevich 1991). These canyons provide large cliffs with escape cover to avoid predation, shaded roost sites to avoid high summer temperatures, patches of forest vegetation, and availability of suitable prey. Home ranges varied widely in Utah with a mean breeding home range of 1,347 acres and a nonbreeding home range of 2,550 acres (Willey and Van Riper 2007).

Historic population size estimates and range of the Mexican spotted owl are unknown; however present population size and distribution are thought to be similar (Service 1995). Ninety-one percent of known owls in 1990-1993 occurred on U.S. Forest Service lands, primarily in Arizona and New Mexico. It is unknown why there are fewer owls in Utah and Colorado, but that may be a function of habitat type. Total range wide population estimates are 1,176 to 2,352 owls (69 FR 53181). Seamans *et al.* 1999 reported 10 percent or greater population declines and low survival rates in central Arizona and west-central New Mexico. The decline in New Mexico appears to be continuing, whereas the decline in Arizona appeared to have stabilized. Wide population fluctuations may be common for Mexican spotted owls (Gutierrez *et al.* 2003).

2.3 California Condor

2.3.1 Species / Critical Habitat Description

The California condor is a member of the family Cathartidae, the New World vultures, a family of seven species, including the closely related Andean condor (Vultur gryphus) and the sympatric turkey vulture (Cathartes aura) (61 FR 54043). California condors are among the largest flying birds in the world (USFWS 1996; 61 FR 54043). Adults weigh approximately 10 kilograms (22 pounds) and have a wing span up to 2.9 meters (9.5 feet) (61 FR 54043). Adults are black except for prominent white underwing linings and edges of the upper secondary coverts. The head and neck are mostly naked, and the bare skin is gray, grading into various shades of yellow, red, and orange. Males and females cannot be distinguished by size or plumage characteristics. The heads of juveniles up to 3 years old are grayish black, and their wing linings are variously mottled or completely dark. During the third year the head develops yellow coloration, and the wing linings become gradually whiter (N.J. Schmitt in litt. 1995; 61 FR 54043). By the time individuals are 5 or 6 years of age, they are essentially indistinguishable from adults (Koford 1953; Wilbur 1975; Snyder *et al.* 1987; 61 FR 54043), but full development of the adult wing patterns may not be completed until 7 or 8 years of age (N.J. Schmitt in litt. 1995; 61 FR 54043). Habitat includes caves, cliffs and steep slopes.

2.3.2 Life history and Population Dynamics

Condors reach sexual maturity by 5 to 6 years of age and breeding occurs between 6 and 8 years of age. Courtship and nest site selection occurs from December through the spring (Service 1996). Nest sites include: caves, cliffs, or a crevice among boulders on a steep slope. Breeding California condors normally lay a single egg between late January and early April, every other year (Service 1996). The condor provides an extensive amount of parental care and the average incubation period for a condor egg is about 56 days (Service 1996). Both parents share responsibilities for feeding the nestling. Fledging occurs at six months of age; however, juvenile condors may be dependent on their parents for more than a year (Peregrine Fund, Calif. Condor 2005). The California condor life span is unknown, but may possibly extend up to 60 years (San Diego Zoo 2005). Condors are strict scavengers. Unlike turkey vultures, condors do not have an exceptional sense of smell (National Park Service 2005). They locate their food visually, often by investigating the activity of ravens, coyotes, eagles, and other scavengers. Without the guidance of their parents, young, inexperienced juvenile condors may also investigate the activity of humans. As young condors learn and mature, this human directed curiosity diminishes (National Park Service 2005).

2.3.3 Status and Distribution

The California condor (*Gymnogyps californianus*) was listed as endangered on March 11, 1967 (32 FR 4001). California condors remain one of the world's rarest and most imperiled vertebrate species (Cooper 1890; Koford 1953; Wilbur 1978) with California being listed as the only critical habitat. Fossil records indicate that California condors once ranged over much of the southern United States. The main reason for the decline of the condor is an unsustainable mortality rate of free-flying birds combined with a naturally low reproductive rate.
Despite intensive conservation efforts, the wild California condor population declined steadily until 1987, when the last free-flying individual was captured. During the 1980s, captive condor flocks were established at the San Diego Wild Animal Park and the Los Angeles Zoo, and the first successful captive breeding was accomplished at the former facility in 1988. Following several years of increasingly successful captive breeding, captive-produced condors were first released back to the wild in California in early 1992. On October 6, 1996, the Service announced its intention to reintroduce California condors into northern Arizona and southern Utah, and designate the released birds as a nonessential, experimental population (NEP) under Section 10(j) of the ESA (61 FR 54043). On October 29, 1996, six California condors were released at the Vermilion Cliffs in Coconino County of northern Arizona. By 2005, 77 condors were released at Vermillion Cliffs, Arizona (Woods *et al.* 2007). The designated experimental population area (ExPA) includes remote federal (BLM, USFS, and NPS) and Native American Reservation lands, and some private lands in northern Arizona, southern Utah and southeastern Nevada (61 FR 54043). The current nesting sites occur within Grand Canyon National Park and Vermillion Cliffs, Arizona (Diana Whittington, personal communication).

3.0 Environmental Baseline

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed State or Federal projects in the action area

that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process.

The action area is defined at 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area also depends on the species being discussed. Please refer to section 1.1 Description of Action Area above for a complete description of the action area.

3.1 Utah Prairie Dog

3.1.1 Status of the Species within the Action Area

Utah prairie dog populations and suitable habitat occur within the administrative boundaries of the Dixie National Forest. We have defined the action area for the Utah prairie dog to be all three recovery units (RU): Awapa, Paunsaugunt, and West Desert.

The Awapa Plateau RU encompasses portions of Garfield, Piute, Sevier, and Wayne Counties. UDWR mapped 27,195 ac of habitat in the Awapa Plateau RU, of which 8,591 ac (32%) are on Dixie National Forest lands (UDWR 2009). The Awapa Plateau RU contains approximately 10% of all adult Utah prairie dogs. Spring counts on the Awapa Plateau have varied since 1976 with low counts of 201 adult prairie dogs in 1976 and 1982 and a high count of 1,145 adult prairie dogs in 1989. From 2007 to 2009, the spring counts showed an increase from 367 adult prairie dogs in 2007 to 769 adult prairie dogs in 2008 and 681 adult prairie dogs in 2009. Average prairie dog density in the Awapa Plateau RU was 0.06 prairie dog per acre from 2000 to 2009 (UDWR 2009).

The Paunsaugunt RU is primarily in Garfield County, with small areas in Iron and Kane Counties. There are 15,620 ac of mapped habitat in the Paunsaugunt RU with 3,776 ac (24%) on Dixie National Forest lands (UDWR 2009). The Paunsaugunt RU contains up to 20% of all adult Utah prairie dogs. Spring counts vary from 652 to 2,205 adult prairie dogs. The area experienced an overall downward trend from 1993 to 2005, but has since rebounded. Average prairie dog density in the Paunsaugunt RU was 0.34 prairie dog per acre from 2000 to 2009 (UDWR 2009).

The West Desert RU is primarily in Iron County, but extends into southern Beaver County and northern Washington County. There are 16,841 ac of mapped habitat in the West Desert RU, of which only 140 ac (<1%) occur on Dixie National Forest lands (UDWR 2009). The West Desert RU contains over 70% of all adult Utah prairie dogs. The West Desert population fluctuates between less than1,000 and 4,750 adult Utah prairie dogs. Peaks of greater than 4,000 animals occurred in 1982, 1989, 2000, and 2005 to 2009. Between 2000 and 2003, the West Desert RU spring counts showed a decrease from 4,521 to 2,523 prairie dogs; however, the population rebounded from 2004 through 2009 (Table 3). Average prairie dog density in the West Desert RU was 0.78 prairie dog per acre from 2000 to 2009 (UDWR 2009).

3.1.2 Factors Affecting Species Environment within the Action Area

Utah prairie dog populations are susceptible to sylvatic plague (*Yersinia pestis*) (Cully 1993). Fleas are the vectors that spread the disease and can be brought into the vicinity of a prairie dog colony by a suite of mammals. Plague outbreaks generally occur when populations increase to high densities causing increased stress among individuals and easier transmission of disease between individuals (Gage and Kosoy 2005).

Threats to the species include intentional poisoning, shooting, urban development, diseases such as plague, habitat loss and degraded habitat quality, and environmental conditions such as vegetation changes and drought (Crocker-Bedford 1975; Stoddart *et al.* 1975; Collier and Spillett 1975; Service 1991). Most of the species distribution occurs on private lands which are or will be largely developed for agricultural production or housing (Service 1991). Other factors leading to degraded habitat quality arise from land management practices, including overgrazing and fire suppression. Overgrazing can result in vegetation changes from grass to shrub; erosion of swales that were historically occupied by Utah prairie dogs; and lowered water tables which in turn reduce the amount of moisture available for palatable grasses and forbs (Crocker-Bedford 1975). Habitat loss and poor habitat quality are immediate concerns for the remaining Utah prairie dogs.

All of the aforementioned threats to the Utah prairie dog occur in the action area. However, land uses such as urban development only occur adjacent to, and not on Forest Service lands.

3.2 Mexican Spotted Owl

3.2.1 Status of the Species within the Action Area

The Mexican spotted owl occurs in the eastern and southern thirds of Utah, including within the action area (UDWR 2003). The Mexican Spotted Owl Recovery Plan was finalized in 1995. Six Recovery Units in the United States were identified based on similarities, or obvious dividing lines, between the following: physiographic provinces, biotic regimes, perceived threats to habitat or individual birds, administrative boundaries, and owl distribution. Suitable habitat and designated critical habitat on public lands managed by the Dixie National Forest are within the Colorado Plateau Recovery Unit (Service 1995). Only one critical habitat unit is within the action area:

Unit CP–12: This unit is located in the vicinity of the Kaiparowits Plateau and the Cockscomb, in Kane and Garfield Counties. The unit is primarily on the Grand Staircase-Escalante National Monument, which is owned and managed by the BLM. Approximately 18,000 acres is owned and managed by the Forest Service (Dixie National Forest).

PCEs were identified for forested habitat, prey species, and canyon habitat. The Mexican spotted owls do not nest in forested habitat in Utah and therefore only prey species and canyon habitat PCEs are relevant to the proposed action.

It is important to note that critical habitat is not the only suitable or occupied habitat available for owls. Critical habitat is only a regulatory delineation of habitat meeting primary constituent elements, and was defined based largely on known localities of nest sites (Protected Activity Centers; PACs) at the time of designation. There is substantial suitable habitat that occurs outside of the designated critical habitat boundaries and these should be assessed using the models and field evaluations as previously described.

Designated critical habitat and suitable habitat occur within the action area. Approximately, 402,895 acres of designated critical habitat is in Unit CP-12 with approximately 18,000 acres on Forest Service land. All 18,000 acres are considered within the action area. There is 47,532 acres of potential habitat within Dixie National Forest. There are just over 700 acres in an established protected activity center on the Escalante Ranger District, however there are no known nest sites in this area.

3.2.2 Factors Affecting Species Environment within the Action Area

Threats to this species and its habitat include recreation, grazing, oil and gas exploration and development, and road improvement and development within canyons; loss, fragmentation, or modification of habitat from catastrophic fire and timber harvest within upland forests potentially used for foraging, dispersal, and wintering; and increased predation associated with habitat fragmentation (Service 1995).

3.3 California Condor

3.3.1 Status of the Species within the Action Area

The California condor is a federally-listed endangered species with non-essential, experimental status in Utah south of Interstate 70 and east of Interstate 15. Condors that travel north of Interstate 70 and west of Interstate 15 are not considered part of the non-essential experimental population, and are listed as endangered. Interstate 15 runs through the eastern portion of the action area. The Pine Valley Ranger District contains California condor habitat where the species is listed as federally endangered (west of I-15); within rest of the action area, the California condor is considered a non-essential, experimental population.

The latest estimate for the number of California condors within Arizona and southern Utah is 73 birds (Marshall 2010). California condors released from Vermillion Cliffs are frequently observed foraging and roosting in and around Zion National Park, which is adjacent to the Pine Valley Ranger District, and in the Cedar City Ranger District. Condors are not known to nest within the action area. In total, there is over 450,000 acres of suitable California condor habitat on the Dixie National Forest.

3.3.2 Factors Affecting Species Environment within the Action Area

Most California condor deaths in recent years have been directly or indirectly related to human activity. Shootings, poisoning, lead poisoning, and collisions with power lines are considered the condors' major threats, and all of these activities occur within the action area. The condor's

slow rate of reproduction and high number of years spent reaching breeding maturity make the birds more vulnerable to these threats.

4.0 Effects of the Action

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Surface disturbances within the action area were estimated based on the assumptions identified in section 1.0 Description of Proposed Action. Total surface disturbance will be approximately 1675.9 acres from the following phases of development:

- Seismic – 420 acres
- Exploratory well development – 1,002 acres
- Production – 253.9 acres

Seismic activities are temporary actions because they are completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. Exploratory well development and production are permanent actions because they continue for more than one activity/hibernation season and/or cause a loss of habitat or displace the species through disturbances, i.e. creation of a permanent structure.

4.1 Utah Prairie Dog

The proposed action includes oil and gas development related activities, namely seismic exploration, exploratory well development, and production. Activities associated with the project include three phases associated with oil and gas development: seismic exploration, exploratory wells, and production (see 1.0 Description of Proposed Action).

Project related activities will result in disturbance to individual Utah prairie dogs from noise, dust, ground vibrations, and increased human presence while seismic activities are occurring. Noise and increased human activity may result in prairie dogs reducing daytime foraging activities and may result in the animals being temporarily displaced. Habitat disturbance may result in reduced forage in the project area due to direct loss from seismic activities or reduced plant vigor from trampling.

Ground vibrations from vibroseis and explosives associated with seismic activities may damage existing burrows. This may result in the need for prairie dogs to excavate new burrows or relocate to other areas. When prairie dogs are excavating or relocating to new burrows, they may be more vulnerable to predation. Although some burrows may be damaged, the prairie dogs will retain the ability to maintain a functional burrow system adjacent to the disturbed areas.

Under the proposed action and this section 7 consultation, the Dixie National Forest commits to impose no-surface occupancy stipulations in Utah prairie dog colonies that are current at the time drilling is proposed. Thus, of the 49,628 acres of Utah prairie dog colony areas in the action area, Dixie National Forest estimates up to 120 acres may be impacted by seismic activities and no acres will be impacted by development or production activities. Utah prairie dogs may be attracted to the surface disturbances associated with oil and gas development. Therefore, the applicable conservation measures within the lease notice from section 1.2.1 Lease Notice—Utah Prairie Dog will be applied should Utah prairie dogs move into an area disturbed by oil and gas activities.

4.2 Mexican Spotted Owl

Proposed project activities can directly affect the Mexican spotted owl through auditory or visual disturbance. This disturbance can disrupt activities such as breeding, feeding, and roosting—(1) raptors are more susceptible to disturbance-caused nest abandonment early in the nesting season; (2) birds generally flush in response to disturbance when distances to the source are less than approximately 200 feet and sound levels exceed 95 dBA; and (3) the tendency to flush from a nest declines with experience or habituation to the noise, although the startle response cannot be completely eliminated by habituation (Delaney *et al.* 1997).

Owls have more sensitive hearing than other birds (Bowles 1995). If noise arouses an animal, it has the potential to affect its metabolic rate by making it more active. Increased activity can, in turn, deplete energy reserves (Bowles 1995). Noisy human activity can cause raptors to expand their home ranges, but often birds return to normal use patterns when the humans are not present (Bowles 1995). Such expansions in home ranges could affect the fitness of the birds, and thus their ability to successfully reproduce and raise young. Species that are sensitive to the presence of people may be displaced permanently (Hammitt and Cole 1987; Gutzwiller 1995; Knight and Cole 1995). If animals are displaced from areas that are essential for reproduction and survival, that population will decline. Likewise, if animals are disturbed while performing behaviors such as foraging or breeding, that population will also likely decline (Knight and Cole 1995).

The proposed action will likely impact any Mexican spotted owl in the vicinity of project related activities through visual or auditory disturbance or displacement from vehicles, heavy equipment, and humans, affecting foraging, roosting, and/or reproductive behavior. The Mexican spotted owl breeding season is from early-March when courtship begins through the end of August when owlets fledge. Birds may respond to disturbance caused by construction activities during the breeding season by abandoning their nests or young or by altering their behavior such that they are less attentive to the young. This increases the risk of young being preyed upon by disrupting feeding patterns; or by exposing young to adverse environmental stress (Knight and Cole 1995). There is also evidence that disturbance can result in lost foraging time that, in turn, may cause some raptors to leave an area or to not breed at all (Knight and Cole 1995).

Impacts from project related activities will include direct habitat loss and degradation from surface disturbance; indirect habitat loss, such as infestations of invasive species that degrade habitat after the disturbance has occurred and erosion on steeper slopes; and direct disturbance to species (Dixie National Forest 2010). Habitat alteration may also affect prey base and prey

availability (New Mexico Avian Conservation Partners 2011). Prey species may be temporarily displaced or crushed from project related vehicles and heavy equipment. This may result in changes in food or prey quality and quantity or foraging habitats in the localized vicinity of the project

Of the 47,532 acres of potential habitat in the action area, Dixie National Forest estimates up to 706 acres may be impacted by seismic activities and up to 706 acres may be impacted by development or production activities. The Dixie National Forest has one designated PAC. Approximately 96% of the PAC area may be impacted by seismic activities. Leases within critical, suitable, and potential habitat will have the lease notice from section 1.2.2 Lease Notice—Mexican Spotted Owl attached. The lease notice contains conservation measures that will help ensure impacts to Mexican spotted owl are minimized.

The proposed action may affect the PCEs associated with prey species and canyon habitat. Prey require high volumes of fallen trees and other woody debris, a wide range of tree and plant species, and adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration. As just discussed, the proposed action may affect prey base and prey availability. Canyon habitats will be protected from adverse impacts by adherence to conservation measures contained in the lease notice. Impacts from temporary actions will be minimized by avoiding active breeding pairs. Impacts from permanent actions will be minimized by avoiding drilling and placing permanent structures within 0.5 mile of suitable habitat as identified by the Forest Service.

4.3 California Condor

The planning area will be open to consideration for exploration, leasing, and development of oil and gas resources. Oil and gas development activities often result in surface disturbances from seismic activities, road and facility construction, removal of topsoil and overburden, stock piling of these materials, and reclamation and recontouring. Indirect impacts include noise disturbance associated with oil and gas development, increased human presence, increased disturbance from equipment and vehicle use, and increased risk of contamination. Noise and visual disturbances may adversely affect the behavior of California condors during breeding, nesting, or foraging activities. Surface disturbances and vegetation removal may adversely affect availability of quality and quantity of prey habitat. Soil disturbances may increase erosion, adversely affect soil stability, and decrease prey habitat. Increased occurrence of invasive plants species may change the vegetation community and change the habitat for prey species. Pollutants in the area may affect California condor through adverse effects to prey populations. As a result of these impacts, there may be decreases in nest initiation or nesting success, and decreased adult fitness.

Of the 450,000 of suitable habitat in the action area, Dixie National Forest estimates up to 120 acres may be impacted by seismic activities and up to 586 acres may be impacted by development or production activities. Leases within suitable habitat west of I-15 where the species is listed as endangered will have the lease notice from section 1.2.3 Lease Notice—California Condor attached. The lease notice contains conservation measured designed to minimize impacts to California condors. Where the condor is listed as an experimental population, lease stipulations will either be Controlled Surface Use or No Surface Occupancy

within 1 mile of a nest that is known prior to the lease being sold. If a nest is found after the lease is sold, then conservation measures contained within the lease notice will be followed.

5.0 Cumulative Effects

Cumulative effects include the effects of future State, tribal or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Declines in the abundance or range of many special status species are attributed to various human activities on federal, state, and private lands, such as human population expansion and associated infrastructure development; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of non-native plant and wildlife which can alter native habitats or out-compete or prey upon native species. Many of these activities are expected to continue on state and private lands within the range of the various federally protected wildlife species, and could contribute to cumulative effects to the species within the action area. Species with small population sizes, endemic locations, or slow reproductive rates, or species that primarily occur on non-federal lands where landholders may not participate in recovery efforts, would generally be highly susceptible to cumulative effects.

5.1 Utah Prairie Dog

Utah prairie dogs in the action area may be affected by future development and human activities on private lands within and surrounding the action area, including agricultural activities, commercial property use, and construction of private homes and subdivisions. Over 75 percent of the Utah prairie dog population range-wide occurs on private and other non-federal lands.

5.2 Mexican Spotted Owl

Mexican spotted owls may occur throughout the action area. Within the action area, a checkerboard pattern of land ownership exists which includes Federal, State, and private landowners. Mexican spotted owls are susceptible to activities on State and private lands. Many of these activities, such as livestock grazing, oil and gas exploration and development, human population expansion and associated infrastructure (increased trails and roads) development, research, fire management from non-federal entities, and recreation activities (including OHV use and any activities that increase human presence), are expected to continue on State and private lands within the Mexican spotted owl's range. Contributing as cumulative effects to the proposed action, these activities will continue to affect Mexican spotted owls' productivity with disturbances to breeding, nesting, and foraging behaviors and further fragmenting habitat of prey populations.

5.3 California Condor

Cumulative effects to the California condor within the action area would include, but are not limited to, the following broad types of impacts:

- Changes in land use patterns or practices that adversely affect a species' suitable or potential habitat.
- Encroachment of human development into a species' suitable or potential habitat.
- Fire management actions by some, or all, of the following groups, on lands adjoining or upstream of Forest Service-administered lands:
    - State of Utah
    - County Governments in Utah
    - Local Governments in Utah
    - Private landholders in Utah

California condors have the capability to occur throughout the action area. The action area is surrounded by and contains a checkerboard pattern of land ownership including Federal, State, and private landowners. California condors are susceptible to activities on State and private lands. Many of these activities, such as livestock grazing, oil and gas exploration and development, human population expansion and associated infrastructure (increased trails and roads) development, research, and recreation activities (including OHV use and any activities that increase human presence), are expected to continue on State and private lands within the California Condor's range. Contributing as cumulative effects to the proposed action, these activities will continue to affect California condors' productivity with disturbances to breeding, nesting, and foraging behaviors and further fragmenting habitat of prey populations.

6.0 Conclusion

The conclusions of this biological and conference opinion are based on full implementation of conservation measures as described in section 1.2 Applicant Committed Conservation Measures of this document.

6.1 Utah Prairie Dog

After reviewing the current status of the Utah prairie dog, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Utah prairie dog. No critical habitat is designated for this species and therefore would not be affected.

We reached this opinion based on the following reasons:

1) Surface occupancy or other surface disturbing activities will be avoided within 0.5 mile of active prairie dog colonies.

2) Permanent surface disturbances or facilities will be avoided within 0.5 mile of potentially suitable, unoccupied prairie dog habitat, identified and mapped by the Utah Division of Wildlife Resources.

3) The acreage of temporary disturbance due to seismic activities is up to 120 acres, or less than 1 percent of the estimated acreage of occupied habitat within the action area. We consider this impact to be a very small portion of the Recovery Areas and occupied

colony acreages. The habitat impacts from seismic activities are temporary and Utah prairie dogs will be able to reoccupy the entire action area following seismic activities.

4) The Applicant Committed Conservation Measures (in section 1.2) will be attached to leases to notify lessee their operational plans may be restricted. If the site specific operational plans can not adhere to all applicant committed conservation measures, consultation under Section 7 of the Endangered Species Act will be initiated.

6.2 Mexican Spotted Owl

After reviewing the current status of the Mexican spotted owl and its critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Mexican spotted owl or adversely modify or destroy critical habitat. We base our conclusion on the following:

1) We are not aware of any nesting Mexican spotted owls on the Dixie National Forest.

2) The acreage of temporary disturbance due to seismic activities is up to 120 acres. We consider this impact to be a very small portion of the available Mexican spotted owl habitat in the action area. The habitat impacts are temporary and will not appreciably diminish the value of critical habitat for the species in the project area.

3) There is a no surface occupancy stipulation on lands within the one protected activity center and within 0.5 mile of a known nest location, should one be located on Dixie National Forest.

4) Direct impacts to critical habitat and potential and suitable habitat are minimal. Up to 706 acres of critical habitat or unverified suitable habitat could be impacted by oil and gas exploration and production activities. Wells will not be located within occupied habitat or within protected activity centers. The amount of alteration associated with the proposed action will not appreciably diminish the value of critical habitat for the species in the project area.

5) The Applicant Committed Conservation Measures (in section 1.2) will be attached to leases to notify lessee their operational plans may be restricted. If the site specific operational plans can not adhere to all applicant committed conservation measures, consultation under Section 7 of the Endangered Species Act will be initiated.

6.3 California Condor

After reviewing the current status of the California condor, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our conference opinion that the action, as proposed, is not likely to jeopardize the continued existence of the California condor. In areas outside the experimental, non-essential population boundaries, the

action, as proposed, is also not likely to jeopardize the continued existence of the California condor. No critical habitat is designated for this species and therefore would not be affected.

We reached this opinion based on the following reasons:

1) We are not aware of any nesting California condor on the Dixie National Forest.

2) Temporary disturbances associated with seismic activities would impact up to 120 acres, or less than 1%, of available rim habitat in the action area. We consider this impact to be a very small portion of the available rim habitat. The habitat impacts are temporary and California condor will be able to utilize the entire action area following seismic activities.

3) Permanent surface disturbances or facilities will impact up to 586 acres of rim habitat, or less than 1% of available habitat. This amount of alteration will not appreciably diminish the habitat availability for the species in the action area.

4) The Applicant Committed Conservation Measures (in section 1.2) will be attached to leases to notify lessee their operational plans may be restricted. If the site specific operational plans can not adhere to all applicant committed conservation measures, consultation under Section 7 of the Endangered Species Act will be initiated.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Forest Service so that they become binding conditions of any grant or permit issued to lessees for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest Service (1) fails to assume and implement the terms and conditions or (2) fails to require lessees to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, either the Forest Service or the lessee must report the progress of the

action and its impact on the species to us as specified in the incidental take statement. [50 CFR § 402.14(i)(3)]

Amount or Extent of Take Anticipated

We have developed the following incidental take statement based on the premise that the reasonable and prudent alternative and the applicant committed conservation measures will be implemented.

Utah Prairie Dog

Based on the information provided in the biological assessment, up to 120 acres of Utah prairie dog habitat will be temporarily impacted by the proposed action.

Incidental take is expected to be in the form of harm and harassment. Harassment may occur due to the effects of construction noise levels, dust, ground vibration, and increased human activity; resulting in disturbance to individual prairie dog foraging, breeding, and rearing behaviors. Harassment is anticipated to be temporary, and confined to the length of seismic activities. Harm may result from injury or mortality from vehicles conducting seismic activities. However, the applicant committed conservation measures will minimize harassment and mortality.

Based on the range wide surveys done in 2009, the average Utah prairie dog density was 0.18 Utah prairie dogs per acre. Therefore, up to 22 Utah prairie dogs may be impacted within the action area in the form of harassment due to project activities. We anticipate that no more than two Utah prairie dogs would be killed by project related activities.

Mexican Spotted Owl

Based on the information provided in the biological assessment, up to 706 acres of Mexican spotted owl habitat will be impacted by the proposed action. Wells will not be placed within occupied habitat or within protected activity centers. Well locations will most likely impact dispersal or forage habitats.

The average home range for a breeding pair is almost double the amount of habitat that will be impacted by the proposed action. Therefore, we anticipate that no more than one breeding pair of Mexican spotted owls and two juveniles could be taken as result of this proposed action. The incidental take is expected to be in the form of harm and harassment through increased noise associated with seismic, exploration, and production activities, including human activity, vehicular traffic, and the use of heavy equipment; through the direct loss of potential foraging habitat; and through the loss of available prey. We anticipate that no more than one breeding pair of Mexican spotted owl and two juveniles will be taken in the form of harm and harassment.

California Condor

Based on the information provided in the biological assessment, up to 120 acres of rim habitat will be impacted temporarily by seismic activities and up to 586 acres of rim habitat will be directly impacted by activities associated with exploration and production of oil and gas resources.

Incidental take is expected to be in the form of harassment (resulting from disturbance of individuals during foraging or roosting). Due to the extremely low population numbers, high mortality rates, and low recruitment rates, we are not authorizing take through harm (injury or mortality) for the proposed action. Based on 2010 population estimates, there are 74 California condors that travel between Arizona and Utah (Marshall 2010). Due to the small percentage of available habitat that will be impacted by the proposed action, we anticipate no more than 3 California condors will be harassed through increased noise associated with seismic, exploration, and production activities, including human activity, vehicular traffic, and the use of heavy equipment; through the direct loss of potential foraging habitat; and through the loss of available prey. We anticipate that no more three California condors will be taken in the form of harassment.

Effect of the Take

In the accompanying biological opinion and conference opinion, we determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The Forest Service coordinated and developed, with us, species-specific conservation measures. These conservation measures were included as part of the applicant committed conservation measures described in the project description section. Therefore, we believe that additional Reasonable and Prudent Measures and Terms and Conditions will not be necessary in this programmatic opinion due to the Forest Service's proactive initiation to minimize impacts on listed species. We commend the Forest Service's efforts to conserve and protect threatened and endangered species. Additional reasonable and prudent measures and terms and conditions may be required on a project-specific level, in a tiered consultation to this programmatic opinion.

REPORTING REQUIREMENTS

Upon locating a dead or injured Utah prairie dog, Mexican spotted owl, or California condor, initial notification must be made within one business day to our Division of Law Enforcement in Cedar City, Utah, at telephone (435) 865-0861, our Ecological Services Office at telephone (801) 975-3330, and the Cedar City office of the Utah Division of Wildlife Resources at telephone (435) 865-6120. This reporting requirement will allow our Division of Law Enforcement or the UDWR to collect and process dead specimens and, if necessary, to determine cause of death.

Instructions for proper handling and disposition of such specimens will be issued by our Division of Law Enforcement consistent with the provisions of the Incidental Take Statement.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

For site-specific oil and gas exploration and development projects that impact Utah prairie dogs we recommend that lessees consider participating in a mitigation banking program to help compensate for impacts associated with habitat loss, degradation, and fragmentation. This will allow lessees to assist with Utah prairie dog conservation and recovery efforts by providing mitigation on a landscape level approach, rather than on a smaller, project-specific basis.

RE-INITIATION STATEMENT

This concludes formal consultation on the proposed Oil and Gas Leasing Project on the Dixie National Forest, Utah. As provided in 50 CFR §402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action is retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may impact listed species in a manner or to an extent not considered in this opinion, 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion, or 4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded or if the terms and conditions of this Biological Opinion are not fully implemented, any operations causing such take must cease immediately pending re-initiation.

Thank you for your interest in conserving threatened and endangered species. If you have any questions please contact Bekee Hotze at 801-975-3330 ext. 146.

Sincerely,

Larry Crist
Utah Field Supervisor

Attachment

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