

**FEDERAL LANDS ANALYSIS  
NATURAL GAS ASSESSMENT  
SOUTHERN WYOMING AND NORTHWESTERN  
COLORADO**

**STUDY METHODOLOGY AND RESULTS**

Prepared by  
**Advanced Resources International, Inc.**

**May 2001**

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3. Remote Sensing Image of Study Area
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## Executive Summary

In their 1999 study *Meeting the Challenges of the Nation's Growing National Gas Demand*, the National Petroleum Council (NPC) projected that U.S. demand for natural gas will grow rapidly over the next decade. They identified the Rocky Mountain region as a significant future source of gas supply to help meet this growing demand. The NPC, however, pointed out that fully 40 percent (137 Tcf) of that potential supply from the Rockies on federal lands is currently unavailable or restricted because of competing uses or environmental considerations.

The NPC study contains a first-time assessment of resource impacts associated with federal land use designations and related environmental stipulations in the Rocky Mountain region, but the assessment was based on a limited sample of federal lands in the region. The NPC recommended that its approach be continued and expanded to increase understanding of the interaction between land use and the natural gas resources of the Rockies. Accordingly, the Department of Energy's (DOE) Office of Fossil Energy in coordination with the Bureau of Land Management (BLM) of the Department of Interior and the Forest Service (FS) of the Department of Agriculture is commissioning a series of detailed studies (DOE studies) in response to the NPC study.

This report documents the first in the series of DOE studies on resource impacts due to lease stipulation and land use categorization for the Rocky Mountain region. This report presents the study results for southern Wyoming and northwestern Colorado and focuses on the Greater Green River Basin (GGRB) and adjacent areas. The GGRB basin was chosen as the first to be studied because it contains the largest amount of potential natural gas resource in the Rockies. The study area covers almost 29 million acres of land, of which over 16 million are under federal ownership.

In this project data on federal lands, including current restrictions and lease stipulations and data on underlying natural gas resources, were collected and analyzed. Stipulations are conditions that are issued for a lease, usually for environmental protection reasons, and change from time-to-time. As such the study represents a "snapshot" in time of conditions present within the study area.

Over 100 discrete stipulation types are represented in the study. To simplify the analysis and reporting of results, the stipulations were grouped into a hierarchy of nine categories ranging from "no access" to standard lease terms. The majority of stipulations fall under the heading of "timing limitations" which limit the time of the year when oil and gas operations can take place. Where multiple stipulations overlap in an area, the cumulative restriction was calculated. Stipulation and land use categories and gas resource data were then overlain using a computerized geographic information system (GIS) analysis.

Undiscovered technically recoverable natural gas resource data from 29 discrete resource plays were obtained for the study, mostly from the U.S. Geological Survey's (USGS) 1995 national oil and gas assessment. In selected unconventional gas formations, USGS data were supplemented by additional studies by Advanced Resources and the Wyoming Geologic Survey.

Based on GIS analysis, the potential natural gas resource that lies under each category of restriction or stipulation was estimated. Maps were produced showing land ownership, including federal

agency jurisdiction for federal land, cumulative stipulations and restrictions, and resource distribution. The unit of analysis is the township, a 6-by-6 mile square. Resource availability was quantified in terms of volumes of undiscovered technically recoverable natural gas resources by federal land type and stipulation and land use categories on a discrete township basis, for approximately 1500 townships in the study area. Proved reserves on existing leases were not evaluated.

Base and sensitivity analyses were performed. In the base analysis, stipulations were evaluated as written. The sensitivity analysis was conducted to account for the fact that some stipulations may not be applied at all times, e.g., when there is a mild winter and the critical winter range is not needed. The sensitivity analysis also makes allowance for the industry’s ability to directionally drill to subsurface targets, although this ability is limited to exploration settings for purposes of the analysis.

The results of the study show that there is about 160 Tcf of potential natural gas resources in the study area, about 117 Tcf of which underlie federal lands (see table). The base analysis shows the following:

- C Slightly over two-thirds of the technically recoverable federal natural gas resources in the study area are either closed to development or available with restrictions.
  - < About 30 percent of the potential federal resources are off limits, with about 1 percent underlying resources being closed by statute, e.g., national parks and wilderness areas. The balance of the inaccessible areas (representing about 29 percent of the potential federal resources) are administratively closed, e.g., not available for lease under a forest plan or in a “wilderness re-inventory area.”
  - < Leasing stipulations of various kinds restrict an additional 38 percent of the federal natural gas resource. Over 90 percent of these restrictions are due to timing limitations of between three and nine months, e.g., for critical winter habitat for big game, or nesting periods for sage grouse or raptors.
- C The remaining 32 percent of the federal resource is subject to standard lease terms, which still dictate that the lessee comply with a number of environmentally protective requirements.

Under the sensitivity case, results are as follows:

Aggregated Stipulations And Land Management Categories	Technically Recoverable Natural Gas Resources	
	Base Case Bcf	Sensistivity Case Bcf
Closed to Development		
No Access (Statutory)	1,422	1,422
No Access (Administrative), No Surface Occupancy	33,060	23,371
Subtotal	34,482	24,793
Available with Restrictions		
Cumulative Timing Limitations >9 Mos.	506	398
Cumulative Timing Limitations 6 to 9 Mos.	20,287	15,434
Cumulative Timing Limitations 3 to 6 Mos.	21,494	18,584
Cumulative Timing Limitations <3 Mos.	863	715
Controlled Surface Use (CSU)	1,753	2,256
Subtotal	44,903	37,387
Standard Lease Terms	37,367	54,571
<b>Total (Federal Lands)</b>	<b>116,751</b>	<b>116,751</b>
<b>Total (Study Area)</b>	<b>159,474</b>	<b>159,474</b>

- C The potential federal natural gas resources in the study area that are either closed to development or available with restrictions is reduced to about 53 percent.
  - < The amount of potential federal natural gas resource that is off limits drops to 21 percent.
  - < About 32 percent is available for development with restrictions.
- C Federal resources under standard lease terms rise to 47 percent.

One example of the application of the analysis is to quantify the impacts of timing limitations on drilling operations. In this study, analysis was conducted concerning the temporal restraints places upon drilling activities by timing limitations. The time required to drill typical wells to undiscovered resource objectives was compared to total timing limitations. Results show that the most restrictive areas are found in the GGRB of the study area, especially in its northwest portion.

Additional statutory and discretionary requirements impact federal land access beyond lease stipulations. These issues, although beyond the scope of analysis in this study, are significant and include the National Historic Preservation Act, National Environmental Policy Act, Endangered Species Act, Conditions of Approval and staffing requirements for the federal land management agencies.

## 1. Introduction

In their 1999 study *Meeting the Challenges of the Nation's Growing National Gas Demand*, the National Petroleum Council (NPC) projected that U.S. demand for natural gas will grow rapidly over the next decade. They identified the Rocky Mountain region as a significant future source of gas supply to help meet this growing demand. The NPC, however, pointed out that fully 40 percent (137 Tcf) of that potential supply from the Rockies is currently unavailable or restricted because of competing uses or environmental considerations on federal lands. The NPC study determined that, of the 137 TCF of restricted natural gas resources, 29 TCF (8 percent of the total potential) are closed to development and 108 TCF (32 percent of the total) are available with restrictions.

The analysis of the Rocky Mountain region in the NPC study was accomplished through a cooperative effort of industry and federal agencies, including the Department of Energy (DOE), the Bureau of Land Management (BLM), and the U.S. Forest Service (FS). Representatives from State and local governments and other stakeholders also participated. The NPC study examined specific “calibration areas” (see NPC study Vol. III, Appendix J) that were used to determine the impacts of lease stipulations, which were extrapolated to the entire Rocky Mountains region.

The NPC study recommended (1999 NPC Study, Vol. I, p. 26, Recommendation 2) that “Government agencies and industry representatives should continue the work begun with this study to inventory existing information on the resource base in the Rocky Mountains and analyze the impact of access restrictions.” Accordingly, DOE’s Office of Fossil Energy, in coordination with the Bureau of Land Management and the Forest Service, requested that Advanced Resources develop detailed estimates of the technically recoverable volumes of natural gas resources affected by varying levels of lease stipulations for the Greater Green River Basin (GGRB) and adjacent areas.

This study is first in a series of studies on resource impacts of lease stipulations for the Rocky Mountain region. Additional similar studies are planned for the Piceance–Unita, San Juan, Powder River, Big Horn and other Rocky Mountain basins. The purpose of these studies is to provide data to support decision-making by the federal land managers and policy makers regarding natural gas resources and environmental impacts. The GGRB basin was chosen as the first to be studied because it contains the largest amount of potential natural gas resource in the Rockies.

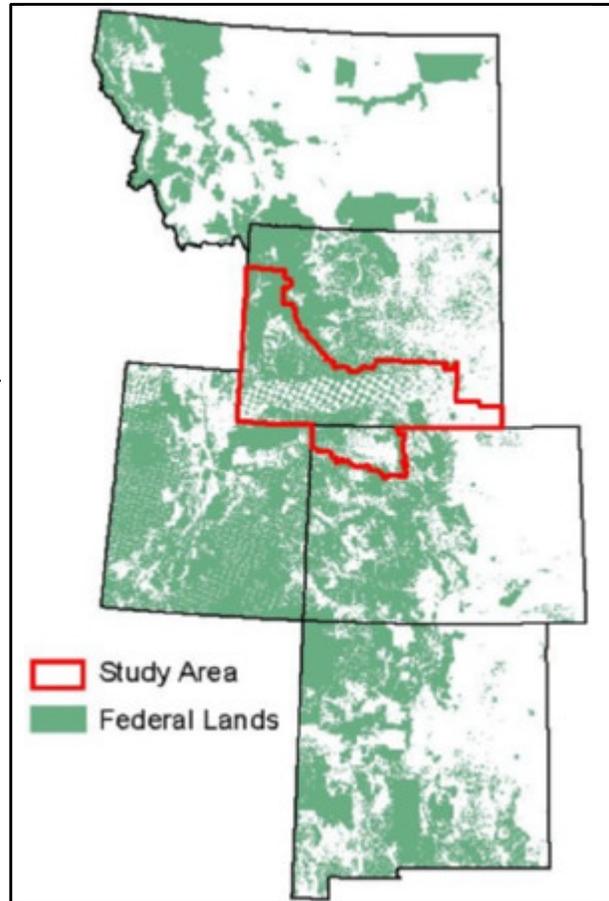
The study area for this report is located in the central Rocky Mountain region (Figure 1) and focuses on southern Wyoming and northwestern Colorado. It comprises the jurisdictions of the BLM offices of Little Snake, Rock Springs, Kemmerer, Pinedale and Rawlins and National Forests of Bridger-Teton and Medicine Bow-Routt (Figure 2). The area of the study was defined by the outline of the BLM offices (in contrast to other federal land management agencies or geologic boundaries)<sup>1</sup>. Some of these BLM jurisdictions reach well beyond the GGRB, so that the study also includes the Laramie

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<sup>1</sup>The outline of BLM offices was chosen because BLM has responsibility for all onshore federal minerals and BLM boundaries cover all federal lands.

and Wyoming Thrust Belts, the Hanna Basin and a portion of the Denver Basin. These basins are contained in three United States Geological Survey (USGS) geologic provinces.

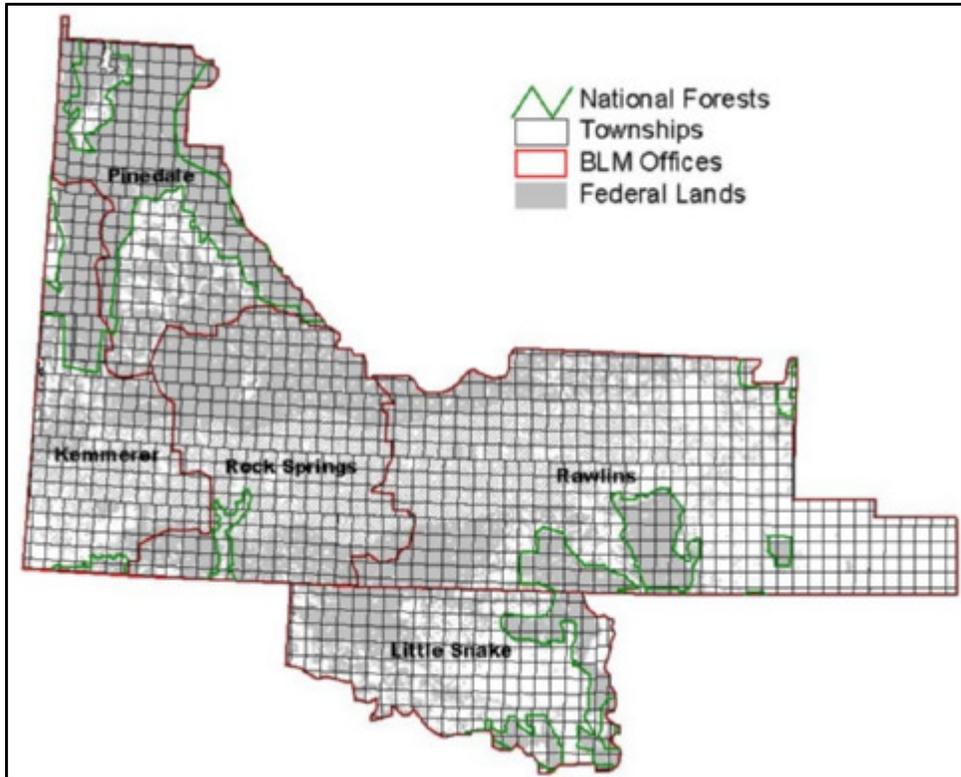
Figure 3 shows the underlying resources within the study area. Table 1 displays federal holding by acreage and natural gas resources within the study area. BLM manages the majority of land and natural gas resources in the study area. The study area extends over almost 29 million acres of land, of which over 16 million are under federal ownership.



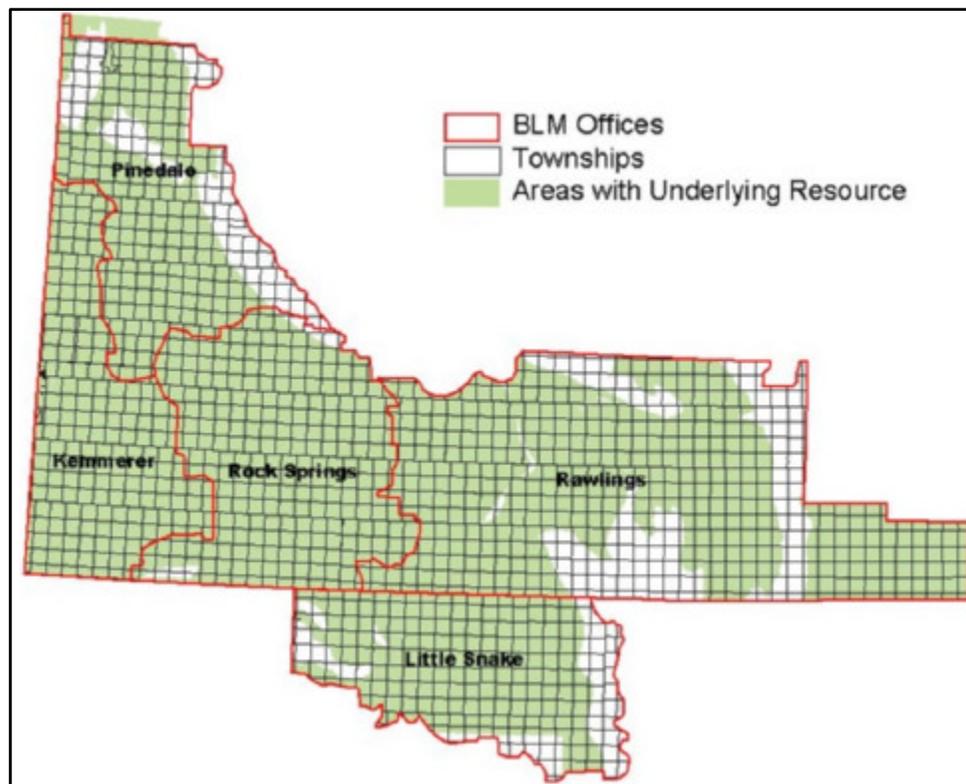
**Figure 1. Outline of the Study Area within the Rocky Mountain Region**

**Table 1. Federal Holdings within Study Area**

Federal Agency	Area		Technically Recoverable Natural Gas Resources	
	Acres	% of Total	Bcf	% of Total
Bureau of Land Management	10,565,000	64.6%	102,306	88.6%
Forest Service	5,214,000	31.9%	13,393	10.2%
National Park Service	289,000	1.8%	15	0.0%
Bureau of Reclamation	247,000	1.5%	1,018	1.2%
Fish & Wildlife Service	36,000	0.2%	19	0.0%
Department of Defense	6,000	0.0%	-	0.0%
<b>Total (Federal Lands)</b>	<b>16,357,000</b>	<b>100.0%</b>	<b>116,751</b>	<b>100.0%</b>
<b>Total (Study Area)</b>	<b>28,892,000</b>		<b>159,474</b>	



**Figure 2. Outline of the Study Area Showing Federal Lands**



**Figure 3. Outline of Study Area Showing Underlying Resources**

## 2. Methodology

In this study, impacts were quantified in terms of volumes of undiscovered technically recoverable natural gas resources affected by stipulation category and federal land type on a discrete township basis, for approximately 1500 townships. Based on GIS analysis, the potential natural gas resource that lies under various categories of restriction or stipulation were estimated. Maps were produced showing land ownership, including federal agency jurisdiction for federal land, cumulative stipulations and restrictions, and resource distribution. Base and Sensitivity case analyses were performed.

The study received significant guidance from DOE, BLM and FS. In addition, meetings were held with industry representatives to gather their input and recommendations. Because stipulations are conditions that are issued for a lease, usually for environmental protection reasons, and change from time-to-time, this analysis represents a “snapshot” in time of conditions present within the study area.

**2.1 Lease Stipulations.** Environmental considerations and land use planning activities trigger stipulation use. Approximately 110 discrete lease stipulation types are represented in the study area. Land use planning agencies, like the BLM, determine which, if any, stipulations are required for a specific lease. This determination is made through National Environmental Policy Act (NEPA) analysis, land use planning and/or site specific analysis. Additional issues, such as the National Historic Preservation Act (considered under standard lease terms) and Conditions of Approval, also affect operators’ abilities to explore for and develop natural gas. Although the impacts of these issues are not quantified in this study, they are topical issues for operators and are discussed in Section 5 of this report.

Stipulations are required modifications of lease terms and are defined as follows<sup>2</sup>:

Stipulations are conditions, promises, or demands to be part of a lease when the environmental and planning record demonstrates the necessity for the stipulations. Stipulations, as such, are neither "standard" nor "special", but rather a necessary modification of the terms of the lease. In order to accommodate the variety of resources encountered on federal lands, stipulations are categorized as to how the stipulation modifies the lease rights, not by the resource(s) to be protected. What, why, and how this mitigation/protection is to be accomplished is determined by the land management agency through land use planning and National Environmental Policy Act (NEPA) analysis.

If, upon weighing the relative resource values, uses, and/or users, conflict with oil and gas operations is identified that cannot be adequately managed and/or accommodated on other lands, a lease stipulation is necessary. Land use plans serve as the primary vehicle for determining the necessity for lease stipulations (BLM Manual 1624). Documentation of the necessity for a stipulation is disclosed in planning documents or through site-specific analysis. Land use plans

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<sup>2</sup> Taken from the booklet, "Uniform Format for Oil and Gas Lease Stipulations," prepared by the Rocky Mountain Regional Coordinating Committee in March, 1989. These guidelines were developed by the BLM and the Forest Service.

and/or NEPA documents also establish the guidelines by which future waivers, exceptions, or modifications may be granted.

Substantial modification or waiver subsequent to lease issuance is subject to public review for at least a 30-day period in accordance with Section 5102.f of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOLRA). Stipulations may be necessary if the authority to control the activity on the lease does not already exist under laws, regulations, or orders. An authorized federal officer has the authority to modify the site location and design of facilities, control the rate of development and timing of activities and require other mitigation under standard lease terms (BLM Form 3100-11, Attachment A-1 and 43 CFR 3101.1-2). The necessity for individual lease stipulations is documented in the lease-file record with reference to the appropriate land use plan or other leasing analysis document. The necessity for exception, waivers, or modifications is documented in the lease-file record through reference to the appropriate plan or other analysis.

In this study, all federal lands covered by the jurisdictions of BLM offices of Little Snake, Rock Springs, Kemmerer, Pinedale and Rawlins, and Forest Services lands of the Bridger-Teton and Medicine Bow-Routt National Forests were analyzed for the impact of stipulations on natural gas resources availability. The initial efforts of this study consisted of characterizing lease stipulations.

Stipulation data from the GGRB and adjacent areas in Wyoming and Colorado were located, collected and integrated for the study. Hard copy and digital data were obtained from BLM and FS offices within the study area showing the mapped lease stipulation areas. In addition the BLM and FS offices provided descriptions of the stipulations for their respective offices. Advanced Resources transferred stipulation data into a consistent digital format (digitizing hardcopy when necessary) using ArcView software. All individual stipulations were mapped and their respective acreage amounts calculated using the ArcView shape files throughout the study area.

Stipulations are categorized by the manner they modify lease rights. The stipulations used for this analysis are described, by BLM and FS offices, in Appendices 1 through 8<sup>3</sup>.

**2.2 Lease Stipulations and Land Use Categorization.** Lease stipulation and land management impacts were assessed to quantify their cumulative effects on federal lands using the township (a 6-by-6 mile square) as the unit of analysis. To simplify the analysis and present meaningful results, the stipulations and federal land types were grouped into a hierarchy of categories (Figure 4, listed most to least restrictive), based on discussions with government officials and industry representatives. The hierarchy was developed to ensure that a given potential lease could be appropriately assessed, especially for areas of multiple overlapping stipulations, ensuring that the cumulative restriction was determined.

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<sup>3</sup> In the appendices, specific lease stipulations used in this analysis are represented by an alpha-numeric codes, shown in brackets, which can be cross-referenced to the spreadsheets accompanying this report.

The fundamental impact on drilling operations and access to natural gas resources is driven by the time during which drilling is prohibited, which ranges from “no access” (statutory or administrative) through three month incremental aggregated timing limitations to standard lease terms as follows:



C “No access” areas comprise statutorily-defined areas (e.g., national parks and wilderness areas), and administratively-defined areas (e.g., “Wilderness Re-inventoried Areas,” “Roadless Areas”).

**Figure 4. Hierarchy of Stipulation and Land Use Designation Categories**

- C No surface occupancy (NSO) stipulations prohibit all surface occupancy for natural gas and oil exploration and development activities to protect identified resources such as special status plant species habitat. NSO areas were treated in the analysis similarly to no access areas (administrative).
- C Timing limitations. The majority of stipulations fall under the heading of “timing limitations” (TLs), which limit the time of the year when oil and gas operations can take place. Timing limitation stipulations prohibit natural gas and oil exploration and development surface use during specified time intervals to preserve identified resources, such as sage grouse habitat areas or elk calving areas.
- C Controlled surface use (CSU) stipulations control the surface location of natural gas and oil exploration and development activities on a lease by excluding them from certain portions of a lease. The CSU exclusion often takes the form of a buffer zone surrounding a critical resource such as a stream.
- C Standard lease terms (SLTs) define areas where operators can lease acreage in the absence of explicit stipulations. Standard lease terms, however, still dictate that the lessee comply with a number of environmentally protective requirements.

Figure 5 shows township 24N 110W from the study area as an actual example where multiple stipulations are located and a sage grouse nest defines the stipulation category for the point selected on the map.

A map depicting the aggregated stipulations and land use categories in the study area is shown in Figure 6.

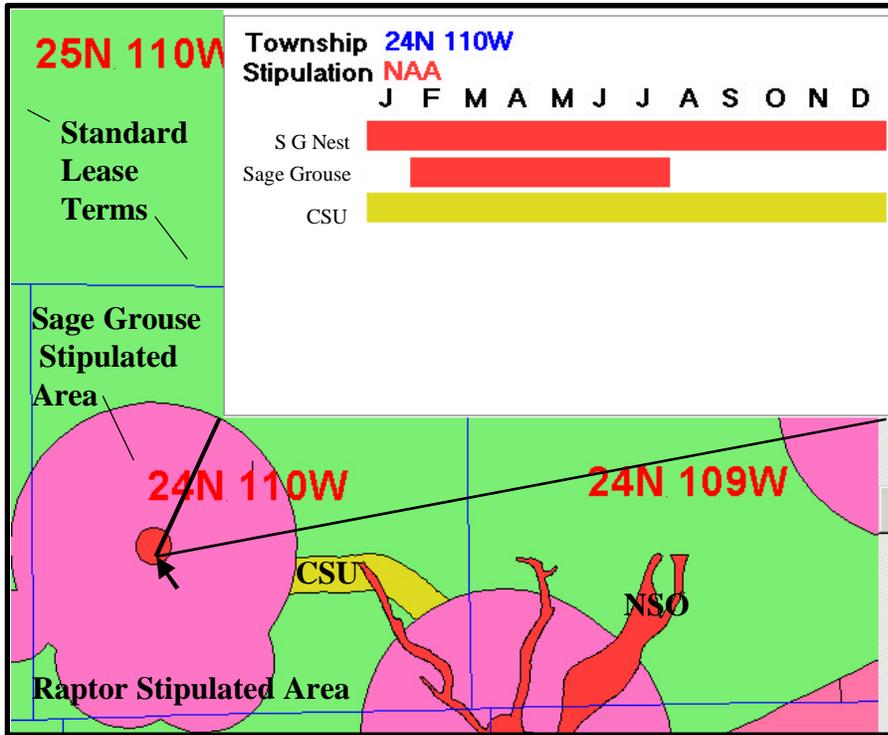


Figure 5. Chart of Overlapping Timing Limitations, 24N 110W

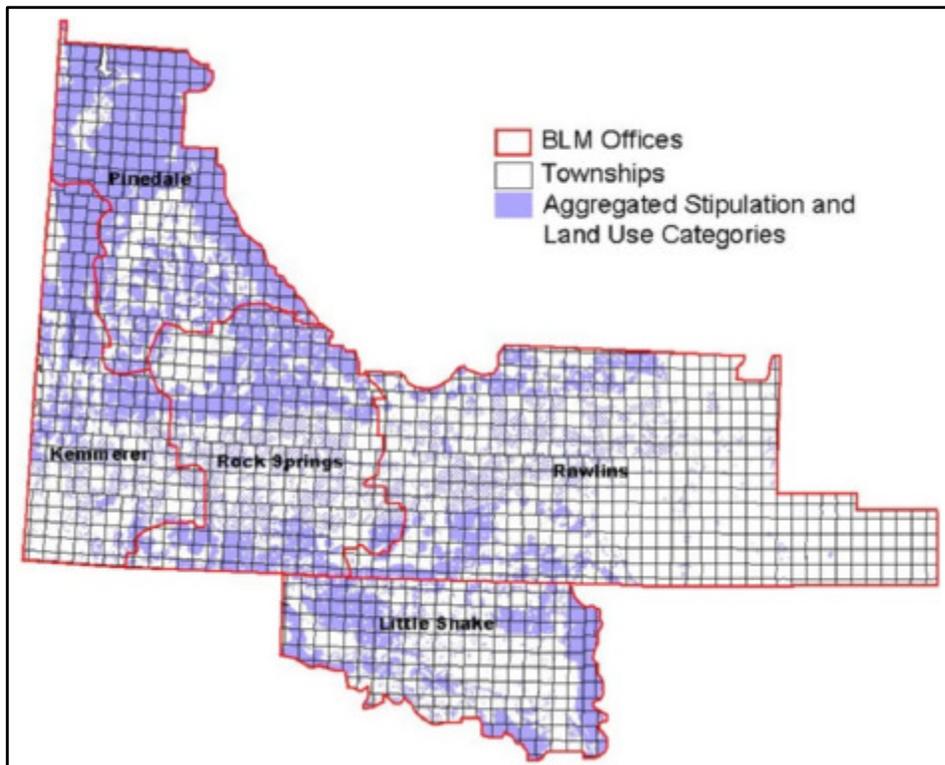
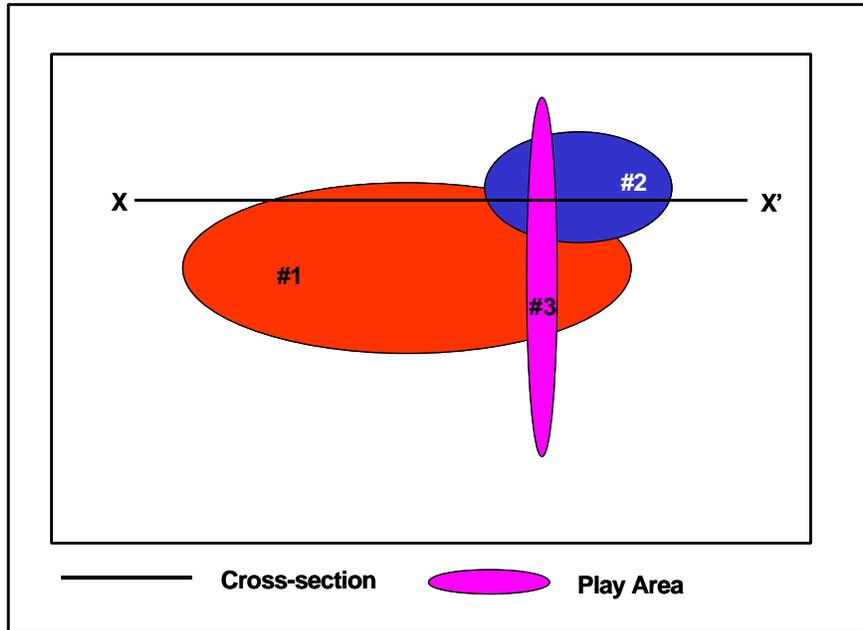


Figure 6. Aggregated Stipulations and Land Use Designations Map

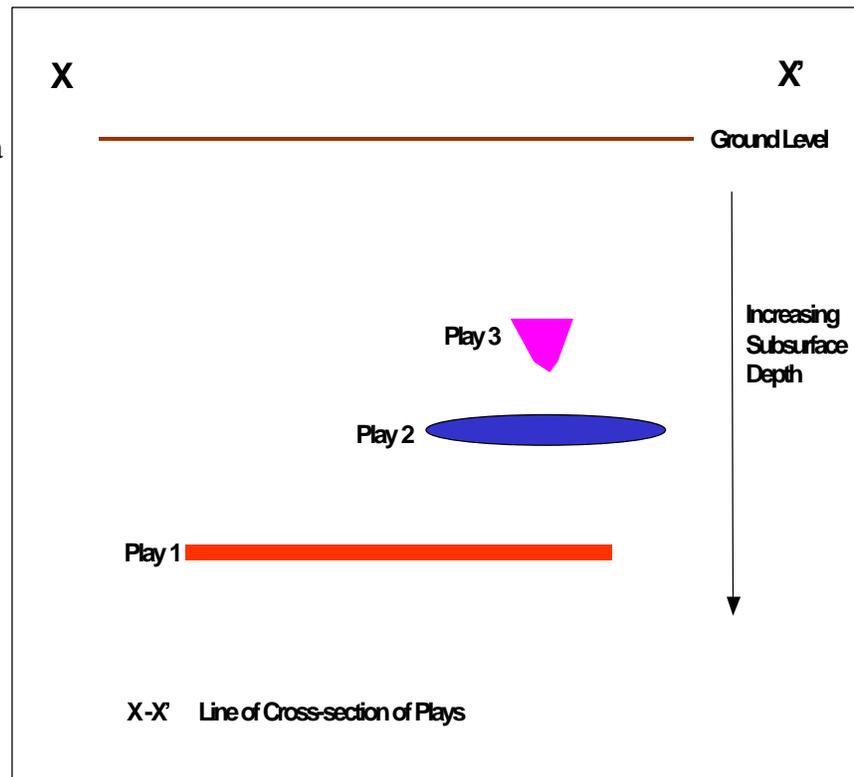
**2.3 Resource Estimation.** In the analysis, resource estimation entailed determination of the technically recoverable natural gas resource volume by township. Natural gas resources were examined using the 1995 USGS national assessment<sup>4</sup>, supplemented by additional studies as described below. The assessment of current leases was beyond the scope of this study. As a result, proved reserves were not assessed.



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**Figure 7. Map View of Geologic Plays**

The 1995 USGS national assessment used the “play” as the unit of analysis. Plays are defined as the set of common geological conditions (source rock, migration charge, traps, seals, etc.) that characterize a group of hydrocarbon accumulations in the subsurface. The geometry of a play is defined by geological environments and has horizontal and vertical expression. Plays can be represented in map view (Figure 7) by showing their projected surface location and areal extent.



JAF01027.PPT

**Figure 8. Cross-section of Geological Plays**

In cross-section, plays have unique vertical subsurface location, shape and spatial relationships (Figure 8). They are often “stacked” so that a given land area are can overlie

<sup>4</sup> USGS 1995 Oil and Gas Assessment (Release 2, data DDS-30 on CD ROM).

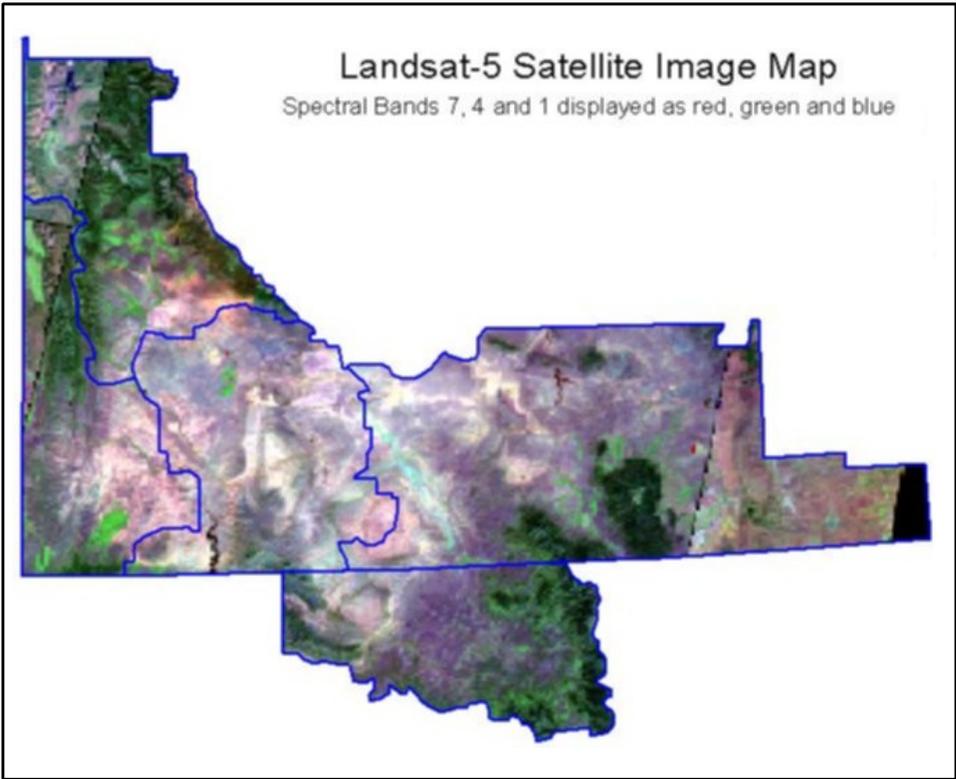
multiple plays, which can yield relatively richer resource values. For example, Play #1 in Figures 7 and 8 could illustrate a “blanket” type environment--thin and wide spread. Play #2 could illustrate a “bar” type environment--oblong and thick in the middle, while Play #3 could display a “channel” type environment--linear with flat top.

For this study, 29 discrete plays were examined to capture the geological variability of natural gas resources within the subsurface. For most plays, the mean natural gas resources volumes for each USGS-defined play were utilized (Table 2). Resource variation vertically within the sediments of the study area was captured by play stacking; within most plays a homogenous distribution within play boundaries was assumed. The USGS resource data were supplemented by additional studies conducted subsequent to the USGS 1995 Assessment; this was done in particular for the over-pressured Mesaverde and Frontier plays.

**Table 2. Technically Recoverable Natural Gas Resources by Play**

<b>USGS Play ID #</b>	<b>Play Type</b>	<b>Mean Resource (Bcf)</b>	<b>Source</b>
3601	conventional	2,906	USGS'95
3602	conventional	366	USGS'95
3603	conventional	4,942	USGS'95
3604	conventional	1,369	USGS'95
3606	conventional	476	USGS'95
3607	conventional	5	USGS'95
3701	conventional	351	USGS'95
3702	conventional	166	USGS'95
3703	conventional	24	USGS'95
3704	conventional	372	USGS'95
3705	conventional	113	USGS'95
3706	conventional	83	USGS'95
3707	conventional	44	USGS'95
3708	conventional	34	USGS'95
3740	continuous	24,074	ARI/USGS
3741	continuous	89,245	ARI/USGS
3742	continuous	19,003	USGS'95
3743	continuous	10,224	USGS'95
3744	continuous	986	USGS'95
3750	coalbed methane (CBM)	693	USGS'95
3751	CBM	1,948	WGS/ARI
3752	CBM	1,118	WGS/ARI
3753	CBM	324	WGS/ARI
3754	CBM	575	WGS/ARI
3755	CBM	409	WGS/ARI
3901	conventional	74	USGS'95
3905	conventional	83	USGS'95
3907	conventional	1	USGS'95
3908	conventional	13	USGS'95
<b>Total</b>		<b>159,856</b>	
Sources: USGS '95: USGS 1995 Assessment of United States Oil and Gas Resources ARI: Advanced Resources International WGS: Wyoming Geological Survey			

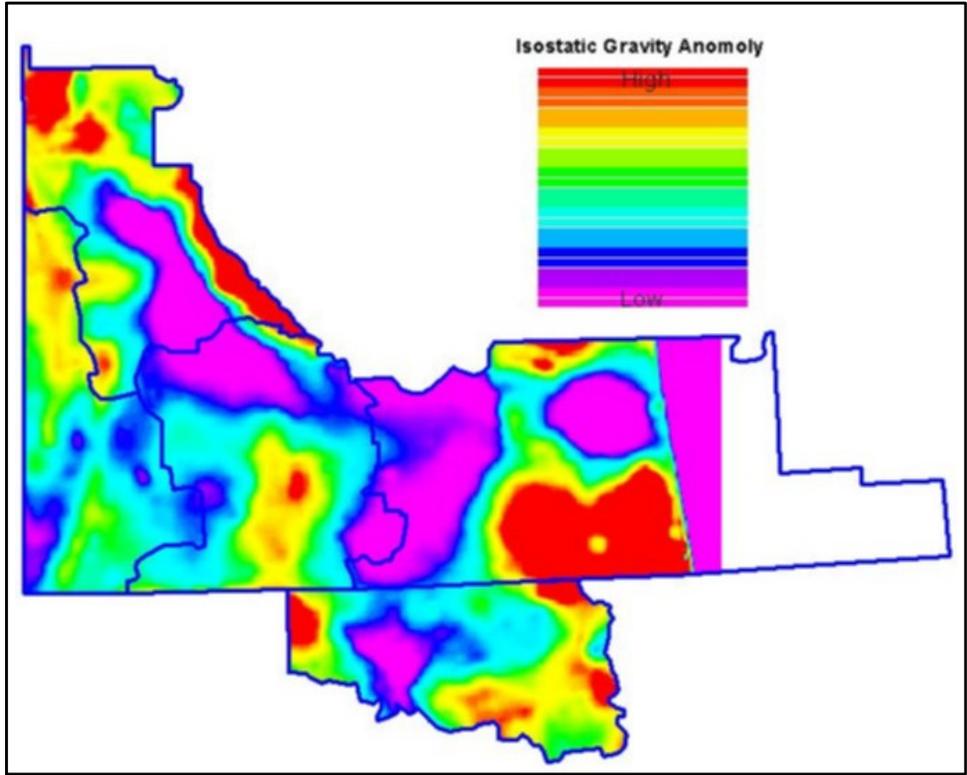
The Mesaverde and Frontier plays were treated separately due to their unconventional play nature, regional extent and large resource potential. Estimates of this potential had been developed by Advanced Resources in a prior study for the DOE<sup>5</sup>, which described technically recoverable natural gas resources defined for the GGRB on a township basis. The Advanced Resources study used analysis of remote sensing images, gravity and magnetic data to determine areas of higher potential within the unconventional Mesaverde and Frontier plays. Remote sensing, gravity and magnetic images of the study area are shown in Figures 9, 10, and 11. For this study, estimates were developed using similar methodology for the Mesaverde and Frontier in the Hanna Basin. Hanna Basin coal bed methane (CBM) resource estimates from the Wyoming Geological Survey (WGS) were also incorporated into the study.



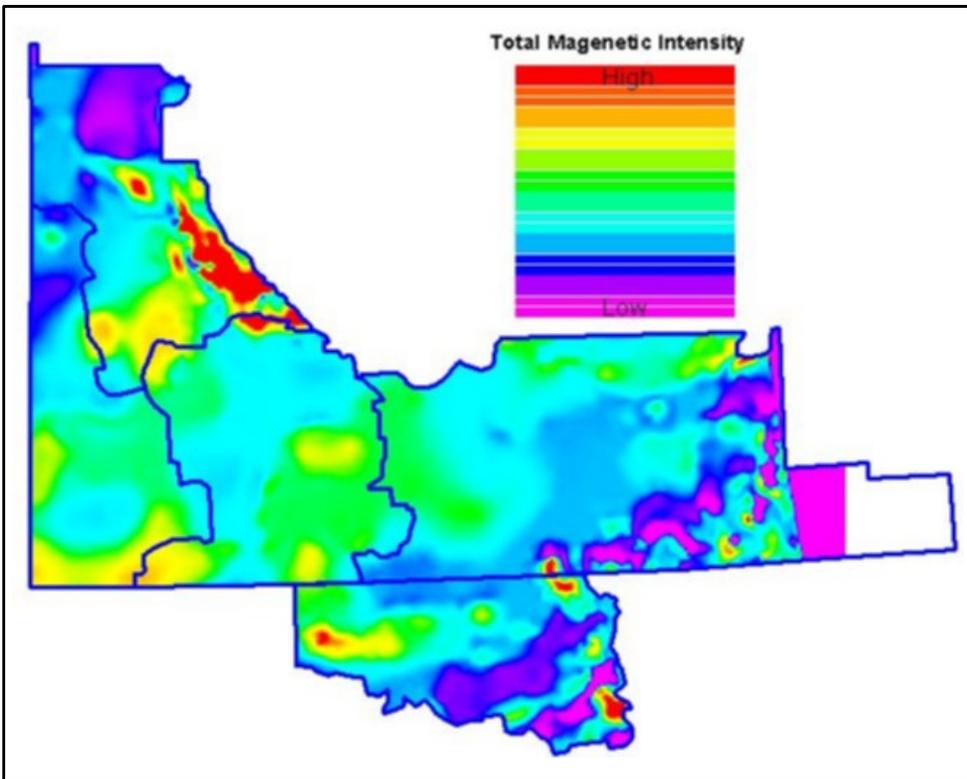
**Figure 9. Remote Sensing Image of Study Area**

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<sup>5</sup> Naturally Fractured Tight Gas Reservoir Optimization; Final Annual Reports, Contract No. DE-AC21-93MC30086, U.S. Department of Energy, Federal Energy Technology Center, prepared by Advanced Resources International, Inc. July 30, 1999.

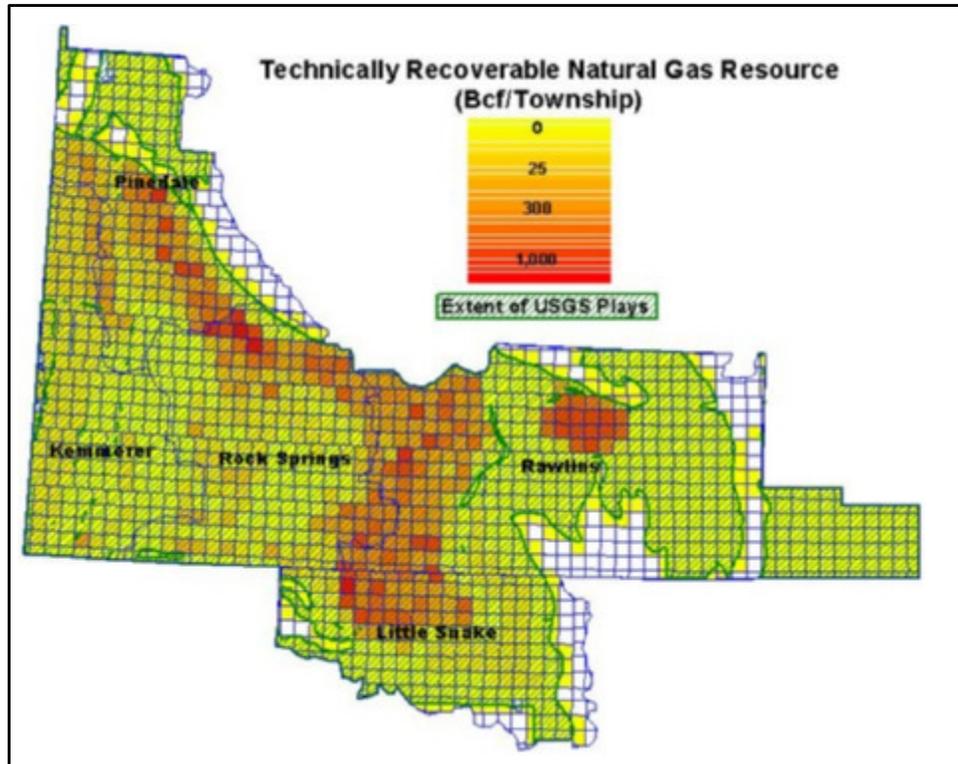


**Figure 10. Gravity Image of Study Area**



**Figure 11. Magnetics Image of Study Area**

For this analysis, resources were estimated on a township-by-township basis. The township was chosen as the unit of analysis to minimize errors associated with the estimation of resources, while preserving the detail of the lease stipulation maps. As such, the resource estimates within a given township in this study should be viewed in the context of the study area; specific township resource values have varying levels of confidence and are less



**Figure 12. Technically Recoverable Natural Gas Resources**

meaningful when viewed in isolation. Technically recoverable natural gas resources are shown for the study area, by township, in Figure 12.

**2.4 Estimation of Impacts Upon Natural Gas Resources.** Using the lease stipulations and land use categories (from Figure 4), estimates of the impacts on natural gas resources were compiled on a township-by-township basis. Two cases were conducted in the analysis: a Base Case and a Sensitivity Case.

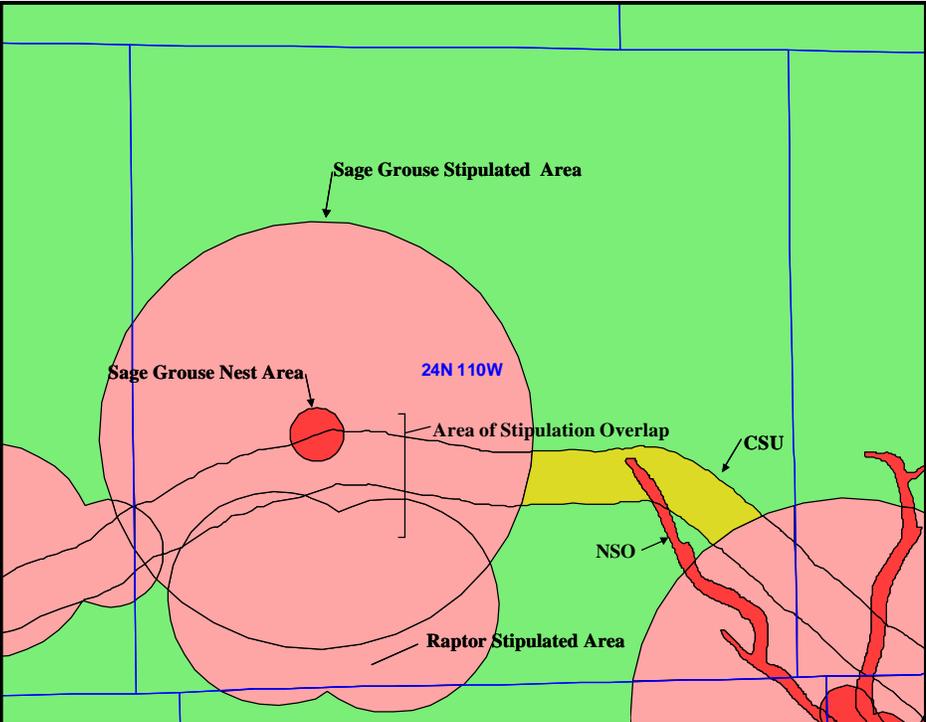
**Base Case.** In the Base Case, for each township in the study area, Advanced Resources used geographic determinations of aggregated stipulation and land use category, federal land type and underlying resource to estimate impacts. Resource calculations were made for each play and then summed up by township as technically recoverable resources by stipulation category, and by federal land type. Results are tabulated by township in spreadsheet form (presented on accompanying CD-ROM and website). Split estate (non-federal surface ownership/federal mineral ownership) natural gas resources were also estimated, but are, by definition, not subject to federal land management and were not analyzed further. For the study, split estate data were only available from BLM for Wyoming.

An example of the aggregated stipulation and land management categories for a township for the Base Case is shown as Figure 13. In this township (24N 110W), stipulated areas include raptor and sage grouse (cumulative timing limitations of 6 to 9 months (TL 6-9)) and controlled surface use (CSU). Note that the core nest of the sage grouse stipulation, which cannot be occupied is considered a “no access” (administrative) area (NAA). A stream course present in the SE corner of the township is stipulated no surface occupancy (NSO), which is also considered as NAA in the analysis. The balance

of the area (in green) is under standard lease terms. In the analysis, underlying natural gas resources in the township allocate in proportion to the area covered by each of the stipulation and land use categories as follows:

- C NAA 67 MMcf
- C TL 6-9 4,133 MMcf
- C CSU 51 MMcf
- C SLT 3,149 MMcf

**Sensitivity Case.** A sensitivity analysis was performed to assess the natural gas resource impacts attributed to the practical implementation of the lease stipulations,



**Figure 13. Aggregated Stipulation and Land Management Categories (Base Case), 24N 110W.**

based on discussions with government officials and industry. The difference between the Base and Sensitivity cases is determined by the treatment for timing limitations for big game (BG), sage grouse (SG) and raptors (R). These stipulation timing limitations were chosen because industry representatives indicated that they are areally common and exemptions are often granted. Industry and government representatives determined that lands associated with BG, SG and R should be discounted about 20, 20 and 30 percent of the time, respectively<sup>6</sup>.

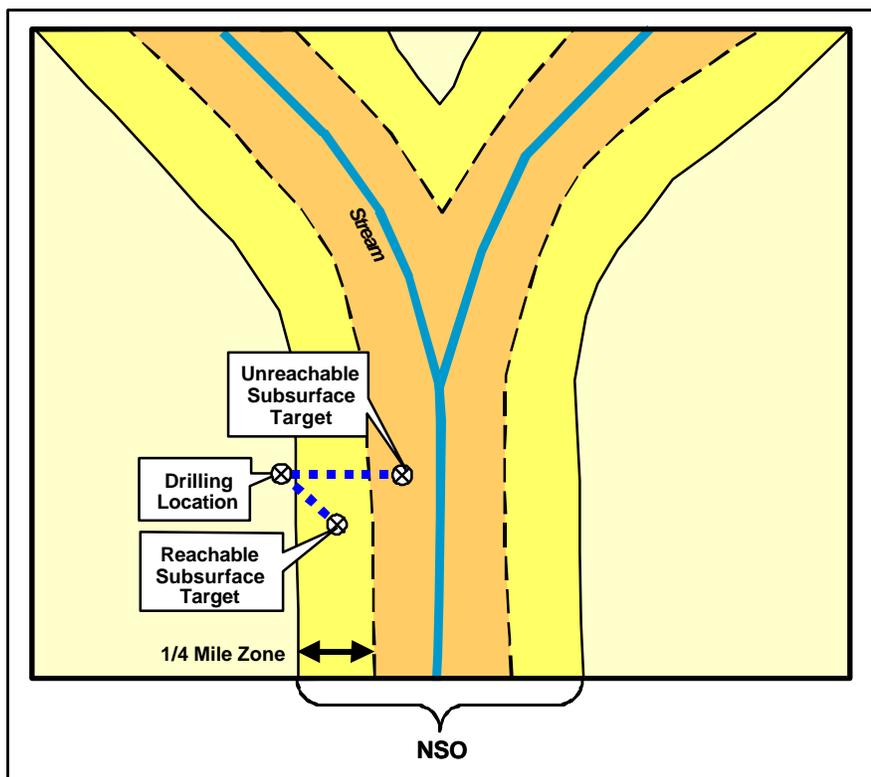
Based on these exemptions, a discounting of the resources underlying these stipulations was made according to the schedule presented in Table 3. Lease stipulations are designated independently of one another by federal land management agencies. Potentially, a given lease could be subject to multiple overlapping timing limitations. Where such conditions exist, in the analysis, the cumulative effect was calculated by the multiplication of individual timing limitation stipulations as shown in Table 3. This reflects the lower probability that, for a given area, exemptions for multiple stipulations could be obtained.

<sup>6</sup> Industry indicates that exemptions are also granted for Mountain Plover about 30 percent of the time; maps of plover habitat are not available and thus could not be incorporated into the analysis.

**Table 3. Cumulative Timing Limitation Discount Factors**

Stipulation	Cumulative Discount Factor (CDF)
Big Game (B)	20%
Sage Grouse (S)	20%
Raptors (R)	30%
Big Game/Sage Grouse (BS)	4%
Big Game/Raptors (BR)	6%
Sage Grouse/Raptors (SR)	6%
Big Game/Sage Grouse/Raptors (BSR)	1.2%

In addition in the Sensitivity Case, for NSO areas, government and industry representatives noted that, in exploration drilling settings, industry would undertake “extended reach” drilling to reach subsurface targets located horizontally distant from the drill site. (Figure 14). The practical “kickout” distance is limited by in the GGRB by exploration economics; to account for industry’s ability to reach subsurface targets by directional drilling, an “extended drilling zone” (EDZ) of ¼ mile was be used in the analysis. In the Sensitivity Case, for the EDZ, the surface locations of drilling reachable targets default to co-located lease stipulations (or SLTs, if no other lease stipulations are present). Unreachable targets remain under NSO.



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**Figure 14. Extended Drilling Zone**

Resources in the Sensitivity Case were determined using the following equation:

$$\text{Resources} = 3((1-\text{CDF}) * \text{Resources}_{(\text{EDZ})} + (\text{CDF} * \text{Resources}_{(\text{BG, S, R})}))$$

Where CDF = Cumulative Discount Factor (see Table 3)  
Resources<sub>(EDZ)</sub> = Resources determined using the Extended Drilling Zone  
BG, S, R = Resources determined using timing limitations for BG, SG or R set at zero separately or in combination according to Table 3.

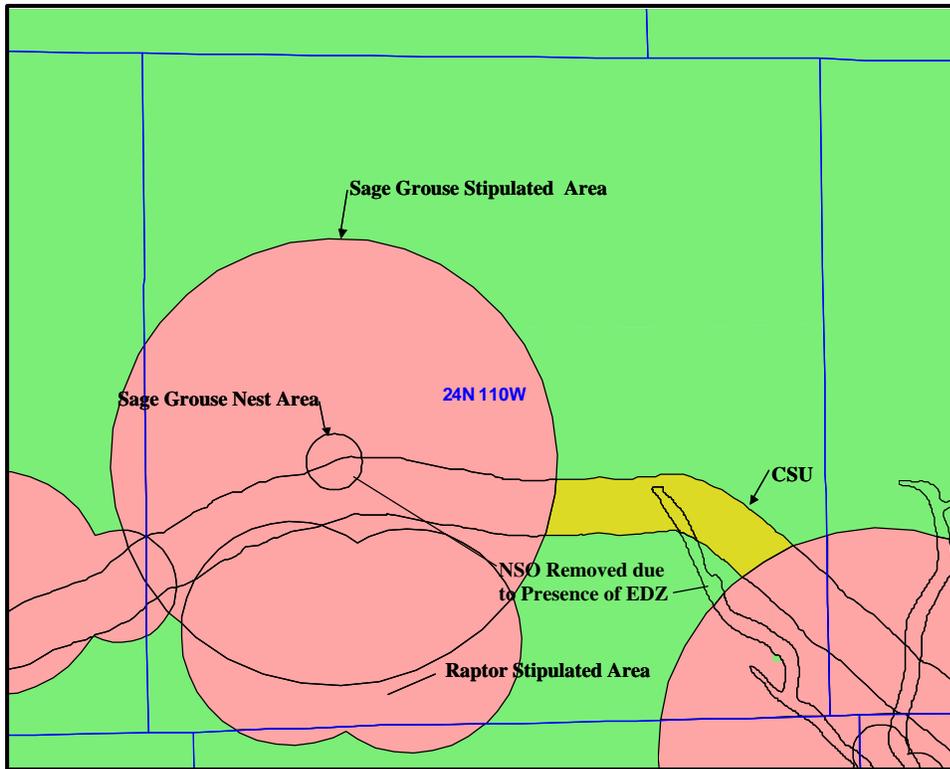
This equation allocates resources in the Sensitivity Case based on use of the extended drilling zone and depending upon the presence of big game, sage grouse and raptor stipulations. As the BG, SG and R stipulations are removed to estimate resources, the calculations in the analysis are set so as to default to the underlying stipulation category in the hierarchy (from Figure 4). For our example township, 24N 110W, Figure 15 shows the effects for estimation of impacted natural gas resources in the Sensitivity Case where sage grouse stipulations are granted exemptions.

In this example the impacted resource is computed based on the presence or absence of the sage grouse stipulation (timing limitation 6-9 months) as shown in the Figures 15a and 15b. Note that, in the absence of the sage grouse stipulation, the analysis defaults to the underlying stipulation or land management category, which in Figure 15b is the raptor stipulation (timing limitation 6-9 months), controlled surface use or standard lease terms. The total resource is calculated accordingly for all combinations of the discounting factors listed in Table 3, resulting in the following resource allocation:

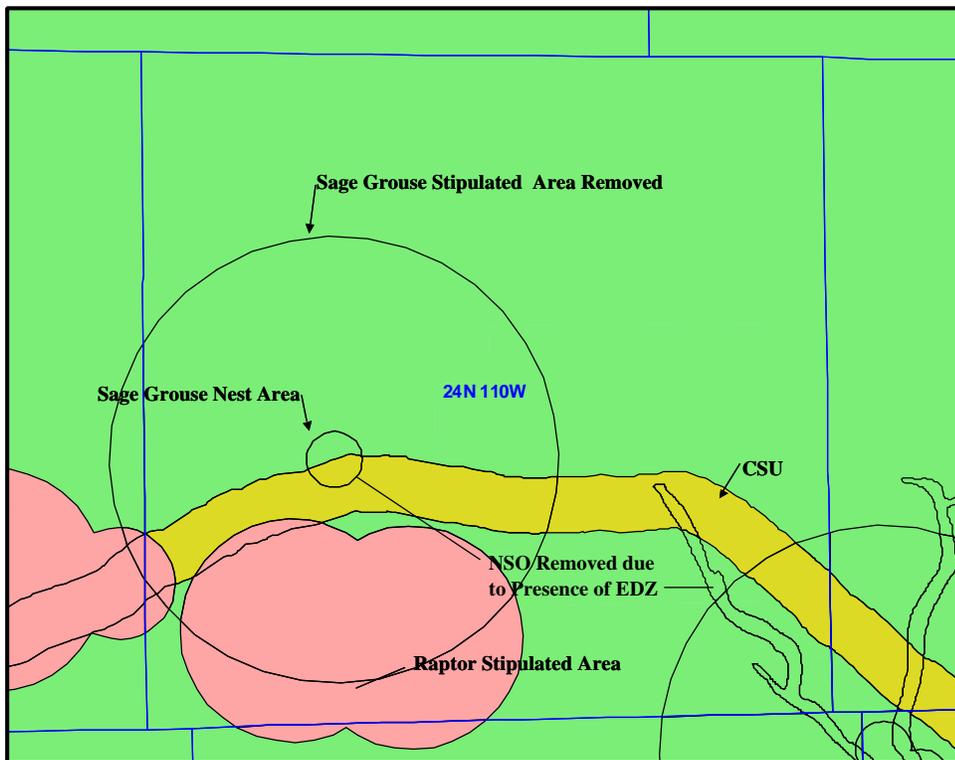
- ∩ NAA 0 MMcf
- ∩ TL 6-9 3,080 MMcf
- ∩ CSU 221 MMcf
- ∩ SLT 4,100 Mmcf

Note that, relative to the Base Case, in the Sensitivity Case, the categories of NAA (representing the sage grouse nest and the stream bed) and timing limitation (6 to 9 months) decreased in resource allocation. Meanwhile the controlled surface use and standard lease terms categories increased.

The parameters used in the analysis for the Base and Sensitivity cases are summarized in Table 4. Note that the treatment of federal land type is the same in both cases. The Sensitivity Case differs only in its treatment of specific timing limitations and the extended drilling zone.



**Figure 15a. Aggregated Stipulation and Land Use Categories (Sensitivity Case), 24N 110W**



**Figure 15b. Aggregated Stipulation and Land Use Categories (Sensitivity Case), 24N 110W with Sage Grouse Stipulation Removed**

**Table 4. Parameters for Conducting Resource Assessment**

<b>Analytical Components</b>	<b>Base Analysis</b>	<b>Sensitivity Analysis</b>
Federal Lands		
Bureau of Land Management (BLM)	Subject to stipulations	Subject to stipulations
Forest Service (FS)	Subject to stipulations	Subject to stipulations
Bureau of Reclamation (BR)	Subject to stipulations	Subject to stipulations
National Park Service (NPS)	No Access (Statutory)	No Access (Statutory)
Fish & Wildlife Service (FWS)	No Access (Administrative)	No Access (Administrative)
Department of Defense (DOD)	Subject to stipulations	Subject to stipulations
Split Mineral Estate	Resources only	Resources only
Wilderness Areas (BLM & FS)	No Access (Statutory)	No Access (Statutory)
Wilderness Study Areas (BLM)	No Access (Statutory)	No Access (Statutory)
Wilderness Re-inventoried Areas (BLM)	No Access (Administrative)	No Access (Administrative)
Inventoried Roadless Areas (FS)	No Access (Administrative)	No Access (Administrative)
Special Designated Areas (FS)	No Access (Statutory)	No Access (Statutory)
NSO Extended Drilling Zone	0 mile	1/4 mile
Timing Limitations		
Big Game Winter Range	Subject to stipulations	Discounted at 20%
Sage Grouse	Subject to stipulations	Discounted at 20%
Raptor	Subject to stipulations	Discounted at 30%

### 3. Results of the Analysis.

The total undiscovered technically recoverable natural gas resources in the study area are about 160 Tcf (Table 5). Of this potential total resource, about 117 Tcf underlie federal lands. Federal split estate natural gas resources are 1.5 Tcf, yielding a total of about 118 Tcf under federal control.

**Table 5. Impacted Natural Gas Resources by Land Management Category**

Stipulation or Land Use Category	Technically Recoverable Natural Gas Resources			
	Base Case		Sensitivity Case	
	Bcf	% of Total	Bcf	% of Total
Closed to Development	34,482	29.5%	24,793	21.2%
Available with Restrictions	44,903	38.5%	37,387	32.0%
Standard Lease Terms	37,367	32.0%	54,571	46.7%
<b>Total (Federal Lands)</b>	<b>116,751</b>	<b>100.0%</b>	<b>116,751</b>	<b>100.0%</b>
Federal Split Estate	1,498			
<b>Total Federal Resources</b>	<b>118,250</b>			
<b>Total (Study Area)</b>	<b>159,474</b>		<b>159,474</b>	

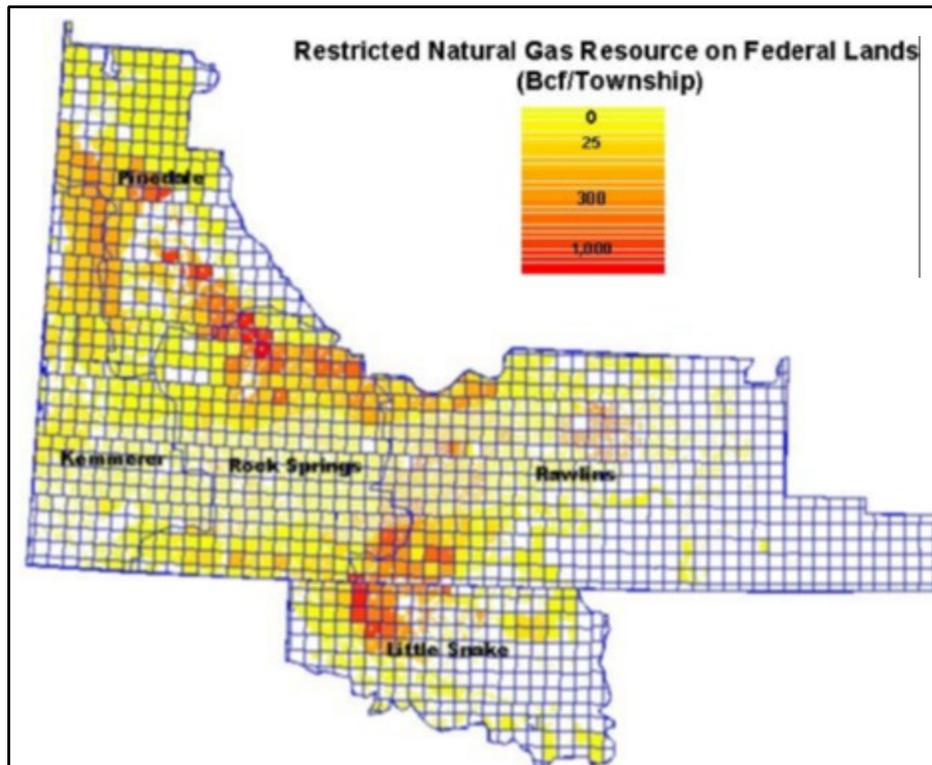
#### 3.1 Base Case Results. The base analysis shows the following (Table 6):

- C Slightly over two-thirds of the federal technically recoverable natural gas resources in the study area are either closed to development or available with restrictions.
  - < About 30 percent of the potential federal resources are off limits, with about 1 percent underlying resources being closed by statute, e.g., national parks and wilderness areas. The balance of the inaccessible areas (representing about 29 percent of the potential federal resources) are administratively closed, e.g., not available for lease under a forest plan or in a “wilderness re-inventory area.”
  - < Leasing stipulations of various kinds restrict an additional 38 percent of the federal natural gas resource. Over 90 percent of these restrictions are due to timing limitations of between three and nine months, e.g., for critical winter habitat for big game, or nesting periods for sage grouse or raptors.
- C The remaining 32 percent of the federal resource is subject to standard lease terms, which still dictate that the lessee comply with a number of environmentally protective requirements.

The total of access-restricted resources (resources closed to development or available with restrictions) on federal lands is about 79 Tcf. The distribution of these restricted resources is shown in Figure 16.

**Table 6. Impacted Natural Gas Resources by Category (Base Case)**

Aggregated Stipulations And Land Management Categories	Technically Recoverable Natural Gas Resources	
	Bcf	% of Total
Closed to Development		
No Access (Statutory)	1,422	1.2%
No Access (Administrative), No Surface Occupancy	33,060	28.3%
Subtotal	34,482	29.5%
Available with Restrictions		
Cumulative Timing Limitations >9 Mos.	506	0.4%
Cumulative Timing Limitations 6 to 9 Mos.	20,287	17.4%
Cumulative Timing Limitations 3 to 6 Mos.	21,494	18.4%
Cumulative Timing Limitations <3 Mos.	863	0.7%
Controlled Surface Use (CSU)	1,753	1.5%
Subtotal	44,903	38.5%
Standard Lease Terms	37,367	32.0%
<b>Total (Federal Lands)</b>	<b>116,751</b>	<b>100.0%</b>



**Figure 16 Restricted Natural Gas Resources on Federal Lands Map**

**3.2 Sensitivity Case Results.** Compared to the Base Case, the Sensitivity Case results in the shifting of about 17 Tcf, as resource is reallocated from various timing limitations and no surface occupancy to controlled surface use and standard lease terms.

Under the Sensitivity Case, results are as follows (Table 7):

- C The potential federal natural gas resources in the study area that are either closed to development or available with restrictions is reduced to about 53 percent.
  - < The amount of potential federal natural gas resource that is off limits drops to 21 percent.
  - < About 32 percent is available for development with restrictions.
- C Federal resources under standard lease terms rise to 47 percent.

**Table 7. Impacted Natural Gas Resources by Category (Sensitivity Case)**

Aggregated Stipulations And Land Management Categories	Technically Recoverable Natural Gas Resources	
	Bcf	% of Total
Closed to Development		
No Access (Statutory)	1,422	1.2%
No Access (Administrative), No Surface Occupancy	23,371	20.0%
Subtotal	24,793	21.2%
Available with Restrictions		
Cumulative Timing Limitations >9 Mos.	398	0.3%
Cumulative Timing Limitations 6 to 9 Mos.	15,434	13.2%
Cumulative Timing Limitations 3 to 6 Mos.	18,584	15.9%
Cumulative Timing Limitations <3 Mos.	715	0.6%
Controlled Surface Use (CSU)	2,256	1.9%
Subtotal	37,387	32.0%
Standard Lease Terms	54,571	46.7%
<b>Total (Federal Lands)</b>	<b>116,751</b>	<b>100.0%</b>

The results of the study are shown by township, in individual Excel worksheets accompanying this report (on CD ROM and website).

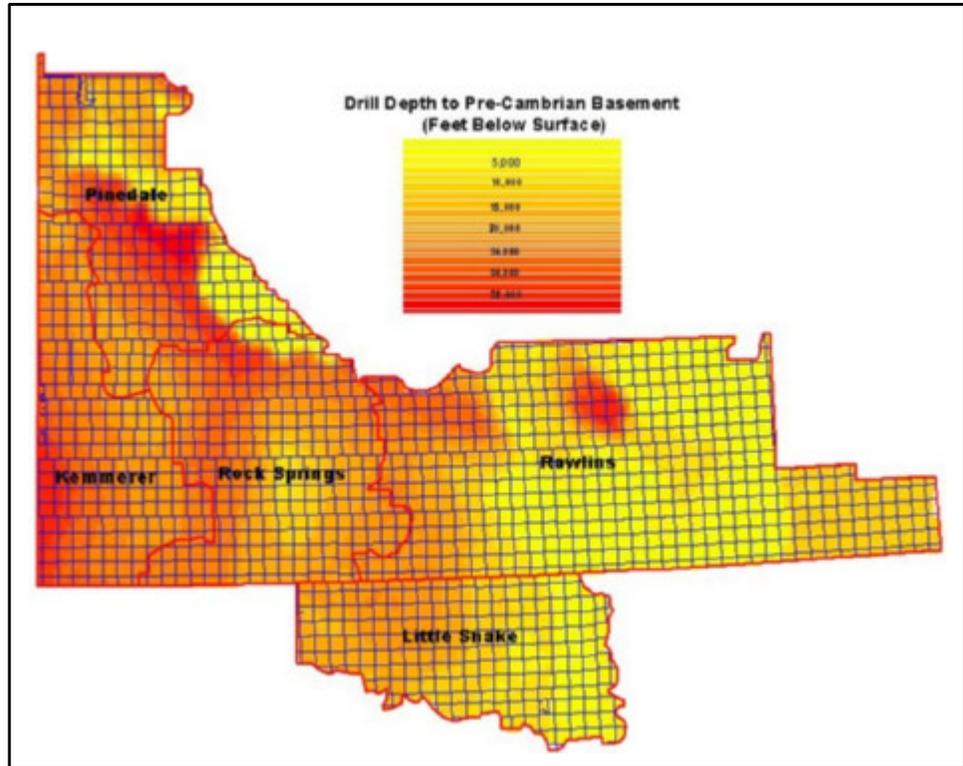
#### 4. Timing Limitations and Their Impact on Natural Gas Well Drilling Operations.

As an example of how this analysis can be used to quantify the impacts of timing limitations on drilling operations, additional analysis was conducted by Advanced Resources on the temporal restraints placed upon drilling activities by timing limitations. The analysis is based on the time required to drill typical wells to undiscovered resource objectives based on drilling depths from ground surface to basement (Figure 17) in the study area. Based on discussions with industry, a ratio of one-half the drilling depth to basement (estimated to approximate lower Cretaceous section) was used to represent average drilling depths to objectives for undiscovered resources, by township.

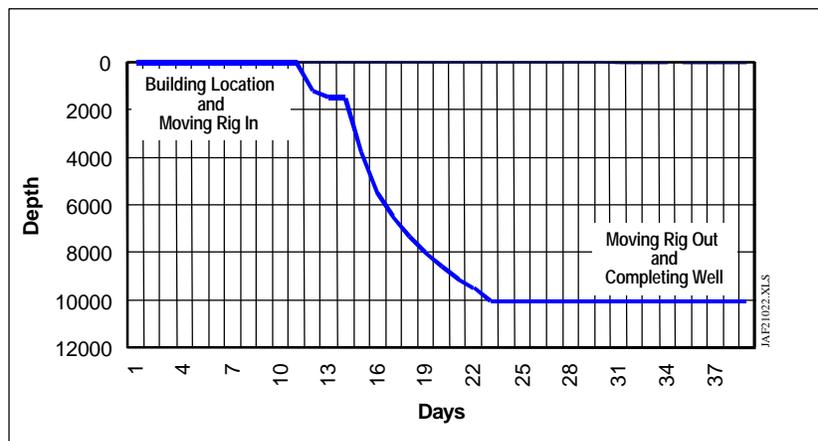
To determine typical drilling time within the study area by township, the calculated drilling depth was fit to one of three “typical drilling time curves” at 10, 14 and 18 thousand feet of depth (Figures 18, 19, and 20).

The drilling curves were developed by industry and illustrate the time required for drilling typical wells in the GGRB. The time at the beginning of the curves represents time allocated for construction of the drilling location and moving in the drilling rig. The time on the end of the curve is for moving the drilling rig out and completing the well.

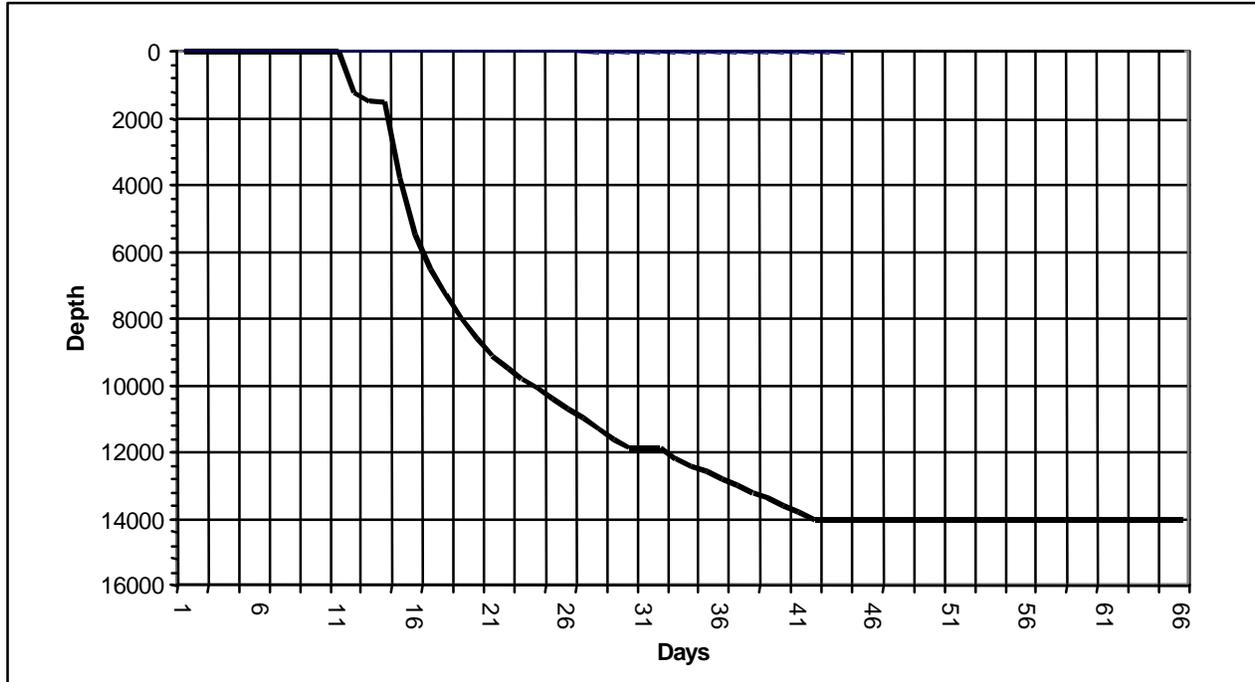
Based on industry guidance, drilling depths were broken into three categories or “bins” as shown in Table 8. The duration of the two shallowest drilling curves (10,000’ and 14000’), fall



**Figure 17. Drill-Depth to Basement Map**

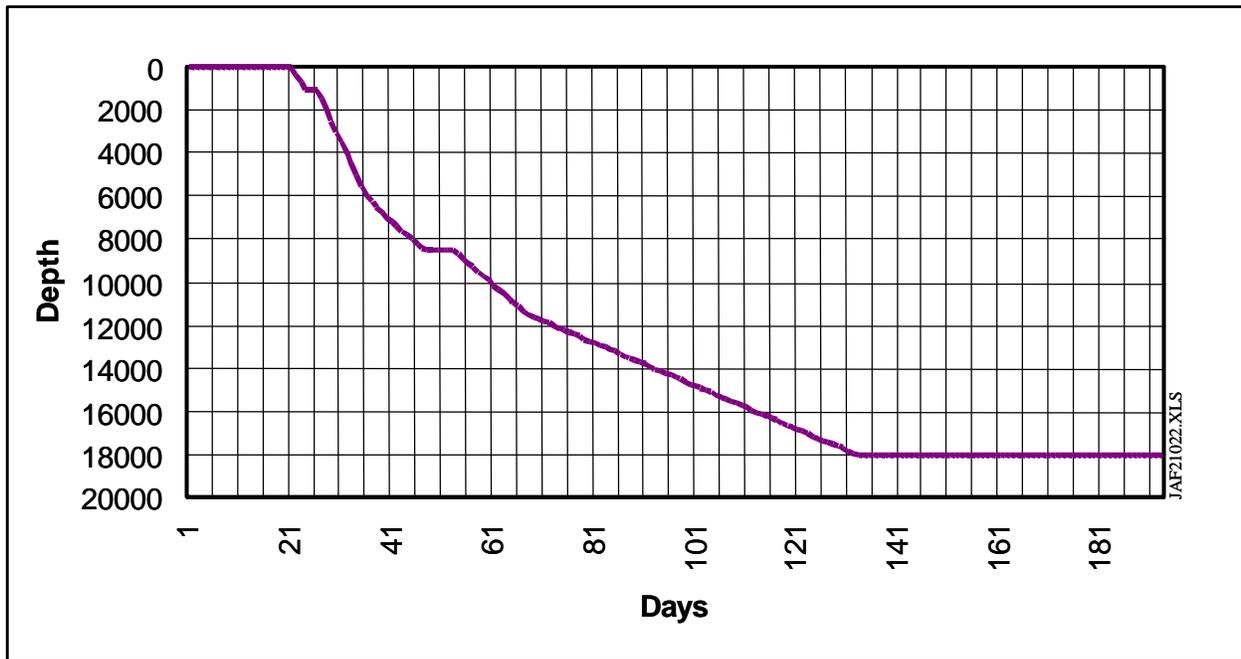


**Figure 18. Typical 10,000' Drilling Time Curve**



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**Figure 19. Typical 14,000' Drilling Time Curve with Intermediate Casing**



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**Figure 20. Typical 18,000' Drilling Time Curve with Intermediate Casing**

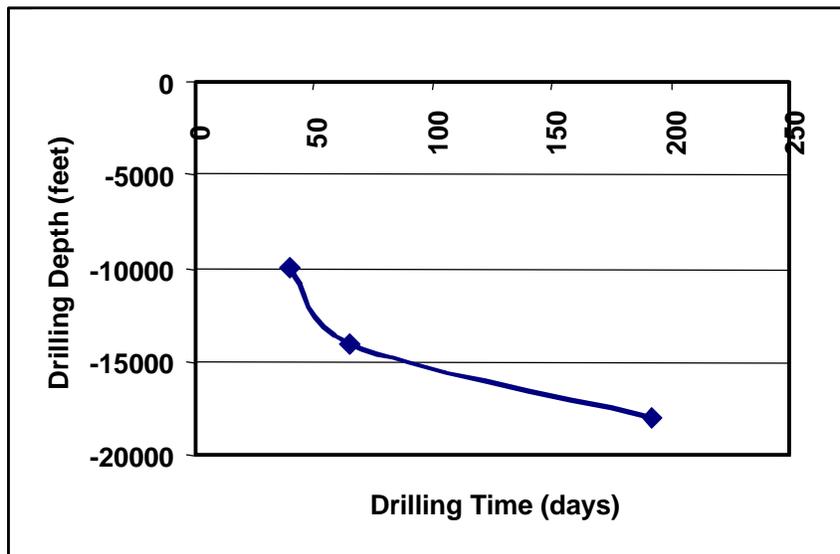
in the least restrictive timing limitation category of <3 months (see Figure 4).

**Table 8. Drilling Depth Bins**

Bin	Drilling Time
0-10,000'	40 days
10,000-14,000'	65 days
>14,000'	190 days

Wells in this category require less than 65 days from building the location through well completion. The deepest drilling curve is for a well that requires 190 days from building the location through well completion, which fits into the timing limitations of 6 to 9 months category.

A plot of drilling time versus drilling depth reveals a hyperbolic relationship (Figure 21). The drilling rate slows down with increasing depth. As operators continue to drill deeper in search of new reserves they will be increasingly constrained by timing limitations. This is a likely scenario because two unconventional, high-potential plays, the Mesaverde and Frontier/Cloverly, are often found at depths in excess of 14,000-foot over significant parts



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**Figure 21. Drilling Time versus Depth**

of the study area. Executing multiple well drilling programs for these high resource potential plays on federal lands affected by timing limitations amplifies the constraint problem for operators.

For the study area, when the map of aggregated stipulations and land use (see Figure 6) is overlain with the drilling depths (based on Figure 17), we are presented with a “drilling opportunities” map (Figure 22) that shows areas when industry would be unable to drill at least one well in a season based on the land classification, stipulations, and/or depth to undiscovered natural resources.

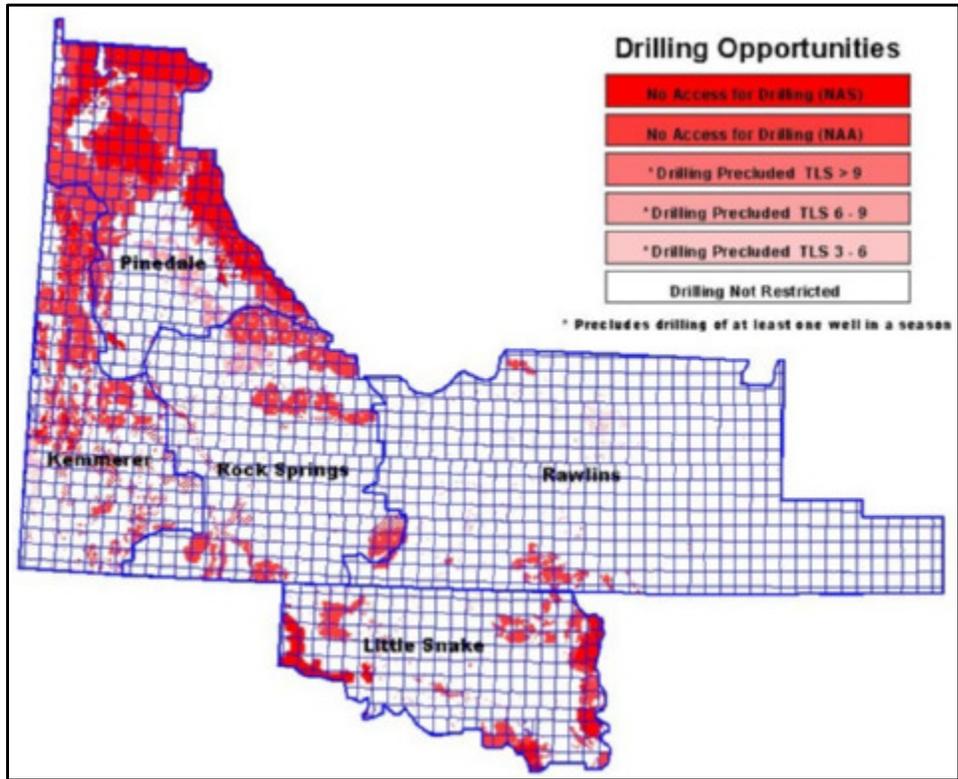


Figure 22. Drilling Opportunities Map

## 5.0 Discussion of Additional Land Access Issues

Additional statutory and discretionary requirements impact federal land access beyond lease stipulations. These issues are discussed below but their impacts were not quantified in the analysis. Members of the oil and gas exploration and production industry consider these statutory and discretionary requirements to be *de facto* restrictions on drilling because they have similar effect as stipulations on their activities.

Significant statutory requirements of concern are the

- National Historic Preservation Act,
- National Environmental Policy Act,
- Endangered Species Act,
- Air Quality Act, and
- Clean Water Act

Important discretionary requirements consist of

- Conditions of Approval (COA) often imposed on applications to drill,
- The interpretations of some standard leasing terms by BLM and FS managers,
- Outdated resource management plans (RMP), which often seriously delay viable projects driving up costs unnecessarily, and
- The increased number of APD (Application Permits to Drill) requests combined with inadequate BLM staffing to process the incoming APDs and associated site inspections.
- Wetlands determinations.

A detailed discussion of the statutory and discretionary requirements is presented below and is based upon the NPC natural gas study (Volume III, Appendix J pp J99-J134). These passages describe the referenced laws and regulations and accompanying industry concerns in detail. The NPC Study, Volume II, in a section entitled *Discussion of Rocky Mountain Access Issues* provides additional information.

**5.1 National Historic Preservation Act.** This Act allowed the establishment of a program for preserving historic and cultural buildings, objects and antiquities thought to be of national significance and for other purposes. Industry notes that the language "for other purposes" is broad and has the potential of prohibiting access in areas not deemed as cultural. A federal agency is required in its undertakings to consider the effects of the action on cultural resources eligible for, or listed on, the National Register of Historic Places.

Private land owners in the "checkerboard" BLM areas (railroad land grant areas of southern Wyoming, see Figure 2) are being petitioned with requests for cultural and endangered/threatened species searches on their private lands even though the minerals may be private. (Although government agency personnel commonly call such lands "isolated tracts", industry indicates that the nomenclature does not adequately depict their geography.) Additionally, if a mineral company finds it necessary to gain access through private lands to a mineral lease on federal lands, the request is also made for a cultural and endangered/threatened/sensitive species search be conducted on private lands. Industry indicates that several landowners have revealed that they will not submit to such searches and thus private

mineral companies may be precluded from access to federal minerals, which appear to be leaseable on agency plans and maps.

**5.2 National Environmental Policy Act.** This law impacts actions of federal agencies and is at the root of much debate over the issue of access. NEPA is the nation's central environmental statute.

NEPA has been woven into the fabric of federal land management decision-making and has become the most important procedural public land management statute because it requires agencies to comply with its process in all situations where major actions are contemplated. It requires that federal agencies give consideration to the environmental aspects of their programs in the form of an environmental analysis. Industry notes that over the years "environment" came to mean only the physical environment. In recent years there have been demands that federal agencies adhere to the meaning in the law, which addresses both the physical environment and the human environment. Socioeconomic impacts are now considered in all Environmental Impact Statements (EIS) and Environmental Assessments (EA) .

Both BLM and the FS have developed manuals for utilizing NEPA in their land planning process and conduct classes for personnel, although those who are attempting to gain access for a project on federal lands find that the two agencies apply NEPA in different ways. Mitigation varies from project to project with public interest and controversy often determining the standards in the decision making process. Industry indicates that, while it may have been instructive in the past to look at which lands have the most scenic and aesthetic values to ascertain and correlate which have the most acres off limits to exploration and production, today each EIS or EA is heavily monitored and debated and/or appealed by specific interest groups. Environmental laws, rules and regulations, policies and guidelines brought forth and placed into action since the early 1970s, aid such groups.

Industry indicates that federal agencies necessarily utilize every avenue afforded by NEPA to substantiate their environmental analysis. Decision making based on NEPA many times costs project developers time and money beyond reasonable limits. Even with such extensive analysis and proper procedures, the number of appeals continues to escalate, which in turn amplifies the uncertainty with which operators must tolerate and the cost of production escalates.

An EIS or EA must be drafted, subjected to public comment by a lead agency team and reviewed by multiple agencies in connection with all major actions. Industry indicates that, as NEPA has gained momentum and complexity of interpretation over the years, many projects have gone from what would have had the status of an EA in early years, to an EIS today, with public hearings on the issue and the process taking 24 to 36 months to complete. This lengthy process costs private companies millions of dollars, and rather than waiting for the federal agency to commence the work, pay a third party contractor to complete the necessary work for an EA or EIS. The designated federal agency remains in control of the process even though the private company pays for the analysis. Streamlining the NEPA process is indicated by industry to be essential, resulting in cost reductions to both the federal government and industry.

Each NEPA document must have developed alternatives to the proposed (preferred) action and can include a "no action" alternative. Impacts are classified as direct, indirect, and cumulative. This aspect

of the law allows for economic impacts to counties and states to be considered, in addition to impacts on resources.

According to the Gas Research Institute (GRI)<sup>7</sup>, it cost between \$60,000 and \$250,000 to complete a large scale EA or EIS in a new field. The cumulative costs associated with access in the NEPA process can add \$9,500 to \$21,000 on a per well basis. Industry has indicated that it would be useful to conduct a survey updating the 1994 GRI data as it is estimated to cost from between \$150,000 to \$1.5 million today for oil and gas projects and take up to 2 1/2 years to complete. If a major pipeline is involved the project, it will take longer and be more expensive. In addition, air quality is a significant issue in the costs of projects and time delays.

In 1999, the State of Wyoming initiated becoming a part of the NEPA process prior to the issuance of the Draft and Final documents with both the BLM and FS. Results of this new development are yet to be determined; however, industry considers it a welcome change and they expect it to reap positive results. Part of this change is the expectation that monitoring will be included in the long-term process. Industry feels it is essential that agencies include monitoring to confirm their predictions of impacts and to ensure that mitigation measures are effective. Only three of the five major producers of environmental analyses, the U. S. Army, the DOE and the BLM, include monitoring in their NEPA guidelines.

**5.3 Endangered Species Act.** Industry considers the Endangered Species Act (ESA) as a formidable constraint on uses of both private and public lands. It generally requires all agencies of the federal government to "conserve" listed species. Industry feels that "conserve" is broadly interpreted and applied. For example, the U.S. Fish and Wildlife Service (FWS), who is responsible for this Act, broadly prohibits "taking" any listed species. When any federal agency proposes a plan of action that "may" affect in any way the existence of an identified species, then a consultation with the FWS must take place to determine if and how the species will be affected. Anyone can petition to list a species with out scientific reasons. The Act, over the years, has precluded all federal agencies from carrying out other laws if it is determined the action may "jeopardize" an endangered or threatened species. Habitat for the species is also protected. Industry notes that the far-reaching effect of Section 7 of the ESA has cost many natural gas projects time and money, and has precluded development of the resource.

Although Section 7 of the ESA is notorious for its far-reaching arm among natural resource based industries, interpretation of the ESA on land use has the potential to go beyond monetary liability. If enough political pressure arises and incites the Justice Department to prosecute for "environmental modification", which is a normal incident to any large-scale project, any activity could be shut down in perpetuity regardless of the volume of natural gas that was determined to be involved. The theoretical basis for this, and the organizations and individuals willing to assert that the environment has been modified, are numerous.

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<sup>7</sup> Gas Research Institute, "Accessibility to the Greater Green River Basin Gas Supply, Southwestern Wyoming", 1994

Species of concern for future protection within the study area include the Canadian lynx, mountain plover, sage grouse, and the plant Ute Ladies'-Tresses.

**5.4 Air Quality.** The Clean Air Act Amendments of 1977 give federal land managers (FLMs) an affirmative responsibility to protect the natural and cultural resources, or “air quality related values” (AQRVs), of designated national parks and wilderness areas from the adverse impacts of air pollution. For proposed new or expanding industrial facilities (including oil and gas operations) within 200 km of these areas--known as Class I areas--FLM responsibilities include the review of permit applications. As part of this review, FLMs determine whether air pollution from these sources would have an adverse effect on AQRVs, including visibility. If an FLM determines that emissions from a proposed source will cause or contribute to adverse effects to AQRVs in a Class I area, the State permitting authority can deny the permit.

Individually, the FLMs have developed different approaches to identifying AQRVs and defining adverse impacts in Class I areas. The National Park Service (NPS) and the Fish and Wildlife Service (FWS) have adopted a case-by-case approach to permit review, considering the most recent information available for each area. NPS and FWS have not completed lists of sensitive AQRVs nor defined adverse impact levels for all of their Class I areas. Consequently, State permitting authorities and industry have expressed frustration with the different approaches FLMs have taken to identify Class I area AQRVs and the specific levels of air pollution that may have an adverse effect on AQRVs. In response, the Environmental Protection Agency (EPA), in its 1996 proposed revisions to the New Source Review (NSR) regulations, encourages FLMs to identify Class I AQRVs and define the levels at which adverse impacts will occur.

Air resource managers representing FS, NPS, and FWS initiated an interagency workgroup known as FLAG (Federal Land Managers AQRV Work Group). The objective of FLAG is to “achieve greater consistency in the procedures each agency uses in identifying and evaluating AQRVs.” The issue turns on determination of the level of pollution likely to cause an “adverse impact” on AQRVs. FLMs consider specific Agency and Class I area legislative mandates in their decisions and, in cases of doubt, “err on the side of protecting the air quality-related values for future generations.” (Senate Report No. 95-127, 95th Congress, 1st Session, 1977).

From the industry’s perspective, federal land managers have tended to use conservative assumptions aimed at returning visibility to its natural state. Especially of concern is the assumption of use of a strict threshold of visibility degradation of 5 percent, which the industry maintains is too low. Natural gas development will tend to increase air emission (all other things being equal), making development in Class I airshed difficult with use of this threshold.

**5.5 Conditions of Approval.** In addition to stipulations, an additional discretionary requirement is placed on extractive companies in the form of Conditions of Approval (COA). COAs are not mandated by law, but have been developed by the BLM over a number of years as mitigation for surface disturbing activities. Industry maintains that there is no standard means of identifying a COA by a potential lessee. Some COAs can be identified as “best management practice” and others are included in a request for authorization approval.

Nearly two hundred COAs address surface disturbing activities for users of the BLM lands. Monitoring is intended to occur when COAs are used as mitigation of a project, but industry notes that there is no ongoing evidence that monitoring is linked to effectiveness of the COA. Activities for natural gas exploration companies that are covered by COAs mainly include:

- C Geophysical exploration
- C Oil and gas exploration, drilling, and well plugging
- C Road construction and maintenance tanks and pits for fluid storage
- C Pipeline and power line construction
- C Protection of archeological and paleontological sites
- C Wildfire suppression hazardous substances
- C Protection of wildlife habitat
- C Management of noxious weeds
- C Reclamation

COAs and lease stipulations overlap and industry indicates that there is no accurate record to classify land-use discretionary withdrawals, whether they are temporary and time limited or consistent and long term. To ascertain the number of acres in COAs, it would be necessary to extensively review the records of each local BLM office, as no procedure exists to systematically gather and analyze such information. Industry indicates that, to truly characterize impacts, COA status of discretionary mandates need to be accounted for. As such, this study may underestimate natural gas resource impacts from the perspective of operators.

**5.6 Wetlands.** The BLM estimates that, in Wyoming, and throughout the semi-arid West, wetlands and riparian areas make up less than 2 percent of the public lands. These areas stay green throughout most of the frost-free months every year while most upland vegetation dries out and turns brown. Wetlands and riparian areas are important areas for wildlife; many wildlife species depend on these habitats. Wetlands and riparian areas also provide valuable sites for livestock grazing and for recreational use.

Wetlands are covered under standard lease terms. Four recent developments could have a significant impact on GGRB operations affecting wetlands or other water bodies that are or might be regulated under the Clean Water Act Section 404 dredge and fill permit program.

In January 2001, the U. S. Supreme Court ruled (in the Solid Waste Agency of Northern Cook County case) that “isolated” waters could not be considered subject to CWA 404 regulation solely because they were used by migratory birds. Although the agencies’ response to this ruling is still evolving, this decision should exclude from CWA 404 regulation some isolated wetlands and dry washes in the GGRB that were formerly considered “jurisdictional waters,” unless the agencies can show that they are tributary to regulated navigable waters.”

In addition, effective June 7, 2001, the Army Corps of Engineers terminated “Nationwide Permit (NWP) 26,” which was a “general,” nationwide permit broadly used to authorize petroleum operations with wetland or water body disturbances under three acres. Separate Nationwide Permits for road crossings and pipelines remain in effect but were made more stringent. The Corps adopted several new

Nationwide Permits to “replace” NWP 26, but none of these authorize petroleum-related activities. As a result, many GGRB operators who affect regulated waters will now be required to obtain “individual” 404 permits, which can be a lengthy and complex process.

That problem is alleviated in Wyoming, due to the Corps’ adoption in June 2001 of a new state-wide general permit (No. 98-08) specifically authorizing petroleum exploration and production activities with only minor water body impacts, under certain conditions. No such general permit has been issued in Colorado.

Finally, in April 2001, the Corps’ new “Tulloch Rule” took effect, which generally considers excavation and earth-moving activities affecting regulated water bodies to be “discharges” requiring 404 permits. In Wyoming, this expanded requirement can be satisfied for E&P operations by proceeding under State-wide General Permit No. 98-08.

## **APPENDIX 1**

### **Leasing Stipulations Craig-Little Snake BLM**

## No Surface Occupancy

1. No Surface Occupancy (NSO) would be allowed on leases within the area of federally leased coal lands where oil and gas development would likely be incompatible with coal extraction. This stipulation may be waived without a plan amendment if the lessee agrees that the drilling of a well will be subject to the following conditions: (1)(a) well must be plugged when the mine approaches within 500 feet of the well and re-entered or re-drilled upon completion of the mining operation; (b) well must be plugged in accordance with Mine Safety and health Administration (formerly Mine Enforcement and Safety Administration) Informational Report 1052; (c) operator will provide accurate location of where the casing intercepts the coal by providing a directional and deviation survey of the well to the coal operator, or (2) relocate well into a permanent pillar or outside the area to be mined. A suspension of operations and production will be considered for the oil and gas lease only when a well is drilled and later plugged, and a new well or re-entry is planned when the mine moves through the location. [Stip. Code: CO-011]

2. Grouse (includes sage grouse, mountain sharp-tailed, lesser and greater prairie chickens). NSO within one-quarter mile radius of a lek site (courtship area). [Stip. Code: CO-21]

Exception for grouse leks. The NSO area may be altered depending upon the active status of the lek or the geographical relationship of topographical barriers and vegetation screening to the lek site.

3. Raptors (includes golden eagle, osprey, all accipiters, falcons, except kestrel, butteos, and owls). Raptors that are listed and protected by the Endangered Species Act are addressed separately. NSO within one-eighth mile radius of nest site. [Stip. Code: CO-3]

Exception of raptors nest site. The NSO area may be altered depending on the active status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site.

4. Bald Eagle NSO within one-quarter mile radius of the roost or nest site. [Stip. Code: CO-4]

Exception for bald eagle roost site. The NSO applies to the essential features of the winter roost site complex. The NSO area may be altered depending on the active status of the roost or the geographical relationship of topographic barriers and vegetation screening.

There are no exceptions currently identified.

5. Peregrine Falcon NSO within one-quarter mile radius of cliff nesting complex. [Stip. Code: CO-5]

There are no exceptions currently identified.

6. Mexican Spotted Owl NSO within one-quarter mile radius of the confirmed roost site and nesting site. [Stip. Code: CO-6]

There are no exceptions currently identified.

7. Waterfowl and Shorebird NSO on significant production areas. (Major areas are Waterfowl Habitat Management Areas and rookeries.) [Stip. Code: CO-7]

There are no exceptions currently identified.

8. NSO on habitat areas with special status plant species (Includes federally listed and proposed species for listing and candidate species.) [ Stip. Code: CO-8]

Exceptions for special status plant species habitat. The NSO may be altered after important factors are considered in the impact analysis such as the type and amount of surface disturbance, plant frequency and density, and the relocation of disturbances.

9. Limestone Ridge ACEC: Protection of remnant plant associations and sensitive plant species, and scenic values. [Stip. Code: LS-1]

There are no exceptions currently identified.

10. Cross mountain Canyon ACEC: Protection of sensitive plants, endangered species, scenic and recreational values. [Stip. Code: LS-2]

There are no exceptions currently identified.

11. Little Yampa/Juniper Canyon SRMA: Protection of flatwater boating opportunities and scenic values. [Stip. Code: LS-3]

There are no exceptions currently identified.

12. Cedar Mountain SRMA: Protection of recreational and educational opportunities, and scenic values. [Stip. Code: LS-4]

There are no exceptions currently identified.

13. Steamboat Lake State Park: Protection of recreational and scenic values. [Stip. Code: LS-5]

There are no exceptions currently identified.

14. Pearl Lake State Park: Protection of recreational and scenic values. [Stip. Code: LS-6]  
There are no exceptions currently identified.

## Timing Limitation Stipulations

1. [Stip. Code: CO-9] Big game species (includes species of mule deer, elk, pronghorn antelope, and bighorn sheep). Note: Crucial winter habitat includes severe big game winter range or other definable winter ranges as mapped by the Colorado Division of Wildlife.

Big Game Crucial Winter Habitat - December 1 to April 30

Exception for big game crucial winter habitat. Under mild winter conditions, the last 60 days of the seasonal limitation period may be suspended. Severity of the winter will be determined on the basis of snow depth, snow crusting, daily mean temperatures, and whether animals were concentrated on the crucial winter range during the winter months.

Exception for big game crucial winter habitat. This limitation may or may not apply to work requiring a Sundry Notice pending environmental analysis of any operational or production aspects.

2. Big Game Birthing Areas: (by species)

- a. Elk calving - April 16 to June 30 [Stip Code: CO-10]
- b. Pronghorn Antelope fawning - May 1 to July 15 [Stip. Code: CO-11]
- c. Rocky Mountain Bighorn Sheep Lambing - May 1 to July 15 [Stip. Code: CO-12]
- d. Desert Bighorn Sheep Lambing - March 16 to May 30 [Stip. Code: CO-14]

Exception for Big Game Birthing Areas. When it is determined through a site-specific environmental analysis that specific actions would not interfere with critical habitat function or compromise animal condition within the project vicinity, the restriction may be altered or removed.

3. Grouse (includes sage grouse, mountain sharp-tailed, and lesser and greater prairie chickens) [Stip. Code: CO-15]

Sage grouse crucial winter habitat - December 16 to March 15

There are no exceptions currently identified.

4. Greater Sandhill Crane nesting and staging habitat areas - March 1 to October 16 [Stip. Code: Co-16]

There are no exceptions currently identified.

5. White Pelican nesting and feeding habitat areas - March 16 to September 30 [Stip. Code: CO-17]

There are no exceptions currently identified.

6. Raptor nesting and fledgling habitat (includes the golden eagle and all accipiters, falcons, except the kestrels\*, all butteos, and owls [except Mexican spotted owls, see Stipulation CO-21, below]) - February 1 to August 15. Raptors that are listed and protected by the Endangered Species Act are addressed separately. [Stip. Code: CO-18]

This seasonal limitation applies to a one-quarter mile buffer zone around the nest site.

\*Kestrels are very adaptable to nest in a variety of habitats and their populations are stable and widespread.

7. Ferruginous Hawk nesting and fledgling habitat - February 1 to August 15. The sensitivity of the ferruginous hawk to human-associated disturbance activities requires a one-mile buffer zone to avoid nest abandonment. [Stip. Code: CO-19]
8. Osprey nesting and fledgling habitat - April 1 to August 31. The sensitivity of osprey to human-associated disturbance activities requires a half-mile buffer zone to avoid nest abandonment. [Stip. Code: CO-20]

Exception for raptors, ferruginous hawks, and ospreys (#'s 6., 7., and 8., above) nesting habitat. During years when a nest site is unoccupied or unoccupied by or after May 15, the seasonal limitation may be suspended. It may also be suspended once the young have fledged and dispersed from the nest.

9. Mexican Spotted Owl nesting and fledgling habitat - February 1 to July 31. [Stip. Code: CO-21]

The Mexican spotted owl has been petitioned for listing as a threatened or endangered species to U.S. Fish and Wildlife Service. Subject to the petition determination, the following habitat management guidelines and restrictions will be used to protect the Mexican spotted owl. These guidelines are adopted from the interim timber harvest management guidelines issued by the Forest Service, Southwest Region (*Federal Register*, Vol. 54, No. 124, June 29, 1989).

Mexican spotted owl habitat is restricted by use of a timing limitation applied to core areas within the owl habitat territory. The territories are by definition of two types: (1) territory in which an owl(s) has been spotted, but no nests or roosts have been confirmed, and (2) territory in which there is confirmed nesting, feeding, and roosting activity. The territory of a Mexican spotted owl is thought to be about 2,000 acres and does not overlap with another individual's (or pair's) territory. Within the territory is a core area of 450 acres where there have been sightings only (#1, above), or 1,480 acres where there are confirmed nests and/or roosts (#2, above). The timing restriction from February 1 to July 31 is applied to the core areas (450 or 1,480 acres). A proposed oil and gas operation within the remainder of the territory (2,000 acres minus 450 or 1,480 acres) will be analyzed prior to permit approval and mitigated for compatibility with the owl habitat.

There are no exceptions currently identified.

10. Bald Eagle Nesting Habitat - December 15 to June 15[Stip. Code: CO-22]

Restriction for bald eagle courtship behavior and nesting habitat. This time period is extremely sensitive to human-disturbance activities and may cause nest abandonment and desertion of long established territories. A one-half mile buffer zone around the nest site is required to prevent disruption of nesting.

Exception for bald eagle nesting habitat. During years when a nest site is unoccupied by or after May 15, the timing limitation may be suspended. It may also be suspended once the young have fledged and dispersed from the nest.

11. Winter Roost Site - November 16 to April 15. Restriction for bald eagle winter roost site. [Stip. Code: CO-23]

The sensitivity of bald eagles to human-disturbance activities requires a one-half mile buffer area around the roost site to avoid relocation to less suitable areas.

Exception for winter roost habitat. If there is partial or complete visual screening of the area of activity, the primary zone around the roost site may be reduced to one-quarter mile.

12. Peregrine Falcon Cliff Nesting Complex - March 16 to July 31[Stip. Code: CO-24]

Restriction for peregrine falcon cliff nesting complex. The sensitivity of peregrine falcon to human-disturbance activities requires a half-mile buffer area around the nesting complex to prevent abandonment and desertion of established territories.

The following exception would apply only after formal Section 7 Consultation with the U.S. Fish and Wildlife Service was consummated.

Exception for nesting habitat. During years when a nest site is unoccupied by or after May 15, the seasonal limitation may be suspended. It may also be suspended once the young have fledged and dispersed from the nest.

13. Isolated and/or Roadless Areas: August 16 to November 14. [Stip. Code: LS-7]

There are no exceptions currently identified.

14. No helicopter or motor vehicle use would be allowed in the Wild Horse Herd Management Area (March 2 to June 30) - foaling season for wild horses. [Stip. Code: LS-8]

There are no exceptions currently identified.

15. No drilling or development operations activity would be permitted within a one-mile radius of the location listed below, from March 1 to December 1: [Stip. Code: LS-9]

Wild Horse Spring; NE1/4SE1/4 sec. 26, T. 10 N., R. 98 W.

Shepherd Spring; SE1/4SE1/4 sec. 8, T. 10 N., R. 98 W.  
Coffee Pot Spring; SE1/4NW1/4 sec. 22, T. 11 N., R. 98 W.  
Two Bar Spring; SE1/4SW1/4 sec. 35, T. 9 N., R. 99 W.  
Dugout Draw Spring; SW1/4SE1/4 sec. 33, T. 10 N., R. 97 W.

This restriction will allow wild horses the uninhibited and undisturbed use of their critical drinking water sources during the period when snow is generally unavailable.

Exception criterion would include provision, by the operator, of an alternate dependable water source at a suitable location outside the mile radius of the spring prior to the authorized activity. The alternate source shall be installed and properly functioning in a continuous manner for a sufficient time, prior to activity, to allow the wild horses to locate and use the source. No activity will be allowed to commence until this stipulation is completely and satisfactorily complied with. Maintenance would be the sole responsibility of the operator.

## Controlled Surface Use

1. A Controlled Surface Use stipulation will be attached to leases where operations proposed within the area of an approved surface or underground coal mine will be relocated outside the area to be mined or to accommodate room and pillar mining operations. This stipulation may be waived without a plan amendment if the lessee agrees that the drilling of a well will be subject to the following conditions: (1)(a) well must be plugged when the mine approaches within 500 feet of the well and re-entered or re-drilled upon completion of the mining operation; (b) well must be plugged in accordance with Mine Safety and Health Administration (formerly Mine Enforcement and Safety Administration) Informational Report 1052; (c) operator will provide accurate location of where the casing intercepts the coal by providing a directional and deviation survey of the well to the coal operator; or (2) relocate well into a permanent pillar or outside the area to be mined. A suspension of operations and production will be considered when the well is plugged and a new well is to be drilled after mining operations move through the location. [Stip. Code: CO-25]
2. Fragile Soil Areas Prior to surface disturbance of fragile soils, it must be demonstrated to the Authorized officer through a plan of development that the following performance objectives will be met. [Stip. Code: CO-26]

### Performance Objectives:

- I. Maintain the soil productivity of the site.
- II. Protect off-site areas by preventing accelerated soil erosion (such as landsliding, gullyng, rilling, piping, etc.) from occurring.
- III. Protect water quality and quantity of adjacent surface and groundwater sources.
- IV. Select the best possible site for development in order to prevent impact to the soil and water resources.

Fragile soil areas, in which the performance objective will be enforced, are defined as follows:

- a. Areas rated as highly or severely erodible by wind or water, as described by the Soil Conservation Service in the Area Soil Survey Report or as described by on-site inspection.
- b. Areas with slopes greater than or equal to 35 percent, if they also have one of the following soil characteristics: (1) a surface texture that is sand, loamy sand, very fine sandy loam, fine sandy loam, silty clay or clay; (2) a depth to bedrock that is less than 20 inches; (3) an erosion condition that is rated as poor; or (4) a K factor of greater than 0.32.

### Performance Standards:

- I. All sediments generated from the surface-disturbing activity will be retained on site.
- II. Vehicle use would be limited to existing roads and trails.
- II. All new permanent roads would be built to meet primary road standards (BLM standards) and their location approved by the Authorized Officer. For oil and gas purposes, permanent roads are those used for production.
- IV. All geophysical and geochemical exploration would be conducted by helicopter, horseback, on foot, or from existing roads.
- V. Any sediment control structures, reserve pits, or disposal pits would be designed to contain a 100-year, 6-hour storm event. Storage volumes within these structures would have a design life of 25 years.
- VI. Before reserve pits and production pits would be reclaimed, all residue would be removed and trucked off-site to an approved disposal site.
- VII. Reclamation of disturbed surfaces would be initiated before November 1 each year.
- VIII. All reclamation plans would be approved by the Authorized Officer in advance and might require an increase in the bond.
3. Prior to surface disturbance on slopes of, or greater than, 40 percent, an engineering/reclamation plan must be approved by the Authorized Officer. Such plans must demonstrate how the following will be accomplished: [Stip. Code: CO-27]
  - a. Site productivity will be restored.
  - b. Surface runoff will be adequately controlled.
  - c. Off-site areas will be protected from accelerated erosion such as drilling, gullying, piping, and mass wasting.
  - d. Surface-disturbing activities will not be conducted during extended we periods.
  - e. Construction will not be allowed when soils are frozen.
4. For the protection of perennial water impoundments and streams, and/or riparian/wetland vegetation zones, activities associated with oil and gas exploration and development including roads, transmission lines, and storage facilities are restricted to an area beyond the riparian vegetation zone. [Stip. Code: CO-28]

Exceptions: This stipulation may be excepted subject to an on-site impact analysis with consideration given to degree of slope, soils, importance to the amount and type of wildlife and fish use, water quality, and other related resource values.

This stipulation will not be applied where the Authorized Officer determines that relocation up to 200 meters can be applied to protect the riparian system during well siting.

5. Irish Canyon ACEC. Inventory for sensitive plant and remnant vegetation associations will be required. Sensitive plants and associations identified will be avoided. Known geologic values and cultural resources will be avoided. [Stip. Code: LS-10]

There are no exceptions currently identified.

6. Lookout Mountain ACEC. Inventory for sensitive plant and remnant vegetation associations will be required. Sensitive plants and associations identified will be avoided.

There are no exceptions currently identified. [Stip. Code: LS-11]

## Lease Notices

1. Surface-disturbing activities in Class I and II Paleontological Areas will have an inventory performed by an accredited paleontologist approved by the Authorized Officer. [Stip. Code: CO-29]
2. In order to protect nesting grouse species, surface-disturbing activities proposed during the period between March 1 and June 30 will be relocated, consistent with lease rights granted and section 6 of standard lease terms, out of grouse nesting habitat. [Stip. Code: CO-30]

Sage grouse nesting habitat is described as sage stands with sagebrush plants between 30 and 100 centimeters in height and a mean canopy cover between 15 and 40 percent.

Greater prairie chicken nesting habitat is described as tall to mid-grass communities with a mean height density index of 5.85 decimeters with 11 percent bare ground and an average height of sandsage at 84 centimeters; grasses 111 centimeters; and forbs 83 centimeters. (Nesting occurs within an average distance of 2.4 km of a lek.)

Lesser prairie chicken nesting habitat is described as short-mid grass and sandsage communities with a mean height density index of 3.5 decimeters with an average grass canopy cover age of 30 percent and 7 percent sandsage. The predominate plant associated with nesting cover is sandsage with an average height of 40-50 centimeters. (Nesting occurs within an average distance of 1.8 km [.2 to 4.8] of the lek site.)

3. Sensitive Species Areas: In areas of known or suspected habitat of sensitive plant or animal species, and high priority remnant vegetation associations, a biological and/or botanical inventory may be required prior to approval of operations. The inventory would be used to prepare mitigative measures (consistent with lease rights granted) to reduce the impacts of surface disturbance to the sensitive plant or animal species. These mitigative measures may include (but, are not limited to) relocation of roads, pads, pipeline, and other facilities, and fencing operations or habitat. [Stip. Code: CO-31]
4. Exploration (including seismic exploration, drilling, or other development or production activity) will generally not be allowed on sheep lambing grounds during lambing activity. Lambing activities usually fall between April 10 and June 30 and last for approximately six weeks. Dates for the six-week closure will be determine for each operation as local conditions dictate. [Stip. Code: LS-12]
5. Prairie dog complexes are being evaluated to determine their habitat suitability for potential reintroduction of the federally endangered black-footed ferret. No surface-disturbance activities will be allowed that may significantly alter the prairie dog complex making it unsuitable for reintroduction of the federally endangered black-footed ferret. Search guidelines developed by the U.S. Fish and Wildlife Service to determine the presence of the black-footed ferret will continue to be required under Section 7 Consultation requirements. [Stip. Code: LS-13]

In areas where recovery actions for the black-footed ferret are likely to occur, the following guidelines will be used to assist in coordinating recovery efforts where petroleum development is proposed or currently exist. These guidelines were developed by the U.S. Fish and Wildlife Service, Denver Regional Office, Colorado, as a draft document titled, *Guidelines for Oil and Gas Activities in Prairie Dog Ecosystems Managed for Black-footed Ferret Recovery, February 1990.*

- a. Petroleum operations and servicing personnel should receive information and instruction and instructions about black-footed ferret natural history and its recovery program to encourage an understanding of the significance of the recovery effort to the species' survival and recovery.
- b. New power lines through the recovery management area should be buried or designed to preclude use as hunting perches by raptor species such as great horned owls, ferruginous hawks, and golden eagles. Buried power lines should be planned like pipeline as confined to corridors in ecologically less desirable areas outside of prairie dog colonies.
- c. Petroleum development in or near prairie dog colonies occupied by ferrets through recovery efforts should avoid, whenever possible, the period between March 1 to August 31 to avoid impacts to ferrets during breeding, gestation, and weaning periods.
- d. Management agencies, landowners, petroleum companies, and other involved agencies should be included early in general field evaluations and planning activities for petroleum developments. This cooperative effort will result in the development and approval of a Surface Use Plan of Operation that will identify the necessary permits, schedule, and activities commencing development operations.
- e. Proposed developments should be designed to avoid any unpermitted taking of black-footed ferrets. In any case where harm or taking of ferrets is deemed possible by the U.S. Fish and Wildlife Service or the Colorado Division of Wildlife, a permit is required to be issued by these agencies.
- f. Whenever proposed petroleum developments cannot be designed to avoid adverse impacts to black-footed ferret or their habitat (components of the prairie dog ecosystem important to ferrets), a compensation plan should be cooperatively developed and agreed to by the petroleum company proposing the development and the land management agency and other cooperating agencies and affected landowners.

## **APPENDIX 2**

### **Lease Stipulations Pinedale BLM**

#### TIMING LIMITATION STIPULATIONS

- TLS (1) Nov 15 to Apr 30; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #1; (3) protecting big game crucial winter range.
- TLS (1) May 1 to Jun 30; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #1; (3) protecting big game parturition areas.
- TLS (1) Feb 1 to Jul 31; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting sage grouse nesting habitat.

#### NO SURFACE OCCUPANCY STIPULATIONS

- NSO (1) *list legal description* ; (2) protecting (*list which feedground*) elk feedground.
- NSO (1) *list legal description* ; (2) protecting HUD designated Zone A (100 year) flood hazard area on perennial water courses.
- NSO (1) Within the boundaries of (*list which campground*) Campground in *list legal description*; (2) protecting campground facilities and associated recreation values.
- NSO (1) *list legal description*; (2) protecting National Register Cultural Resource Site (*list site reference number*).

#### CONTROLLED SURFACE USE STIPUALTIONS

- CSU (1) Surface occupancy or use within 1/4 mile of the (*list which campground*) will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2 ; (3) protecting campground and associated recreation values.
- CSU (1) Surface occupancy or use within 1000 feet of Beaver Creek or on slopes greater than 25 percent in the Beaver Creek ACEC will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting class A Colorado River cutthroat trout habitat.
- CSU (1) Surface occupancy or use within the Cora Stock Driveway will be restricted or prohibited from June 1 through June 30 and from Oct 1 through Oct 31 unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting cattle movement along the stock driveway.

- CSU (1) Surface occupancy or use, including snow removal and vehicle operations (over-the-snow vehicles excepted), will not be allowed on the Continental Divide Snowmachine Trail (CDST) from December 1 to April 30, unless the operator and the surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting recreational use on the CDST.
- CSU (1) Surface occupancy or use within HUD designated Zone A (100 Year) flood hazard areas not protected by NSO will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Flood Hazard Overlay; (3) protecting riparian, water quality and floodplain values.
- CSU (1) Surface occupancy or use within the Sublette County Landfill at (*list landfill*) will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. This may include development, operations and maintenance of facilities; (2) (*list legal description*); (3) public safety and preventing ground water contamination.
- CSU (1) Surface occupancy or use within the Upper Green River Special Recreation Management Area and Wild & Scenic River Study Area will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting recreation and Wild & Scenic River values.
- CSU (1) Surface occupancy or use within 1/4 mile of a sage grouse strutting ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. Surface use and human activity will not be allowed within a 1/2 mile radius of active leks between midnight and 9:00 AM from March 1 through May 15. These restrictions may apply to the operation and maintenance of production facilities, as well as development activities; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting sage grouse breeding habitat.
- CSU (1) Surface occupancy or use between Feb 1 and July 31 within a radius of up to 1 mile of occupied or active raptor nest sites will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2, or as determined by a pre-disturbance raptor survey; (3) protecting raptor nesting habitat.
- CSU (1) Surface occupancy or use within the Soapstone Basin will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) to reduce sediment and salinity deposition in the Green River/Colorado River system.

- CSU (1) Surface occupancy or use within 1/4 mile or the visual horizon (whichever is closer) of contributing segments of the Lander Cut-off of the Oregon Trail will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Oil and Gas Lease Stipulation Overlay #2; (3) protecting contributing segments of the National Historic Trails System
- CSU (1) Surface occupancy or use will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Pinedale RMP Visual Resource Management Overlay (preferred alternative); (3) protecting Class I and II Visual Resource Management Areas.

**Cross-referencing table of stipulation code names relative to this study (see resource allocations on Excel spreadsheet accompanying this report).**

<b>Code name</b>	<b>Stipulation label (see stipulation table above)</b>
[P-1]	NSO (1) Protecting National Register Cultural Resources Site.
[P-3]	NSO (1) Within the boundaries of campground in legal description; protecting campground values.
[P-4]	TLS Feb 1 to Jul 31 Protecting sage grouse nesting habitat
[P-5]	NSO Protecting HUD designated Zone A (100 year) flood hazard area or perennial water courses.
[Wy-1,Wy-2, Wy-3,Wy-4, Wy-5]	TLS Nov 15 to Apr 30 Protecting big game crucial winter range

## **APPENDIX 3**

### **Lease Stipulations Rock Springs BLM**

## Rock Springs Calibration Area Stipulations

### AREAS OF OIL AND GAS LEASE RESTRICTIONS BY HYDROCARBON POTENTIAL (Approximate Acres)<sup>1</sup>

Category	Surface Ownership	Hydrocarbon Potential (Federal Surface and Subsurface Acres)			
	Federal Acres	High	Moderate	Low	Total
<b>No Leasing</b>					
Greater Red Creek ACEC (Red Creek Drainage) X203	55,880	20,810	12,230	26,430	59,470
Wind River Front (Eastern Portion)	88,510	0	0	92,990	92,990
<i>Total No Leasing</i>	144,390	20,810	12,230	119,420	152,460
<b>No Surface Occupancy (NSO)<sup>2</sup></b>					
14-Mile Recreation Area MBH	20	20	0	0	20
Big Sandy River and 1/4-mile buffer (1.5 miles) MBH	240	0	0	240	240
Boars Tusk	90	90	0	0	90
Cedar Canyon, LaBarge, Sugarloaf, Tolar, CONF and White Mountain Petroglyphs + 1/2-mile vista	1,600	770	480	350	1,600
Crookston Ranch	40	40	0	0	40
Cottonwood Canyon MBH	160	0	160	0	160
Current Creek Drainage X601A	23,740	0	2,820	21,200	24,020
Dry Sandy Swales HISTRAILS	20	0	0	20	20
Emmons Cone MBH	60	60	0	0	60
Greater Sand Dunes ACEC (developed recreation sites and ORV parking lot)	50	50	0	0	50
LaCiede and Dug Springs Stage Stations CONF	20	20	0	0	20
Native American Burials CONF	2	2	0	0	2
Natural Corrals ACEC X232	1,115	1,270	0	0	1,270
North and South Table Mountains MBH	1,280	1,280	0	0	1,280
Oregon Buttes ACEC X228	3,450	0	0	3,450	3,450
Pilot Butte MBH	120	0	0	120	120
Pine Butte MBH	320	320	0	0	320
Pine Springs ACEC X600, X600A, X600B	6,030	0	0	6,030	6,030
Prehistoric Quarry CONF	160	0	0	160	160
Raptor nesting (occupied nests, cliffs, bluffs, roosts, outcrops, and pinnacles)	835	600	120	125	845
South Pass Historic Landscape (area visible within 1-mile buffer of Lander Cutoff and area visible within 3-mile buffer of Oregon Trail)	33,700	0	760	34,630	35,390
Special status plant species habitat <sup>3</sup> A*	3,610	2,600	100	920	3,620
Sweetwater River and 1/4-mile buffer XEROX MAP (Wild & Scenic part, 5.8 miles)	1,860	0	0	1,860	1,860
Tri-Territory Marker MBH	10	10	0	0	10
Wild horse herd viewing area + 1/2-mile buffer MBH	500	0	500	0	500
<i>Total No Surface Occupancy</i>	79,120	7,130	4,938	69,193	81,261

### **Seasonal Restrictions<sup>2</sup>**

Crucial Antelope Winter Range	817,640	268,740	335,370	241,780	845,890
Crucial Deer Winter Range	676,830	330,630	74,590	300,690	705,910
Crucial Elk Winter Range	345,590	182,870	40,280	128,000	351,150
Crucial Moose Winter Range	33,270	8,770	6,500	23,080	38,350
Elk Calving Areas	85,830	55,610	6,130	26,330	88,070
Game Fish Spawning Areas (miles) <i>DNM</i>	210	30	80	140	250
Moose Parturition Areas	410	0	0	410	410
Mule Deer Parturition Areas	40,880	21,690	0	19,010	40,700
Raptor Habitat	361,330	263,780	47,750	57,480	369,010
Sage Grouse Nesting Areas (1 3/4 mile from lek)	447,170	110,740	218,770	131,840	461,350
<i>Total Seasonal Restrictions</i>	1,954,560	934,400	483,870	622,190	2,040,460
<b>Controlled Surface Use Restrictions <sup>2</sup></b>					
Continental Divide Snowmobile Trail (1/4-mile buffer)	2,330	0	0	2,330	2,330
Floodplains, wetlands, and riparian areas (within 50 feet of 100-year floodplains and waters) <sup>4</sup>	153,320	33,370	65,700	58,250	157,320
Highly erodible soils	158,110	62,390	34,390	63,100	159,880
Historic Trails (1/4 mile or visual horizon) <sup>5</sup>	64,910	34,430	25,400	23,740	83,570
Monument Valley <i>X604</i>	69,940	69,940	0	0	69,940
Pine Mountain and Sugarloaf Basin ( <i>X601B - X203</i> )	150,080	64,400	60	88,040	152,500
Recreation sites + 1/4 mile buffer	930	330	130	470	930
Riparian Areas	8,730	2,780	1,718	4,940	9,438
Sage Creek Watershed <i>X601C</i>	52,270	6,660	32,450	13,850	52,960
Sage Grouse Leks and 1/4-mile buffer	8,170	1,420	4,410	2,660	8,490
Slopes greater than 25%	188,090	84,440	29,730	83,700	197,870
South Pass Historic Landscape (area not visible within 1-mile buffer of Lander Cutoff and area not visible within 3-mile buffer of Oregon Trail)	20,080	0	460	20,640	21,100
Special status plant species potential habitat <sup>6</sup> <i>P*</i>	39,870	7,090	16,890	19,690	43,670
Steamboat Mountain Crucial Overlap <sup>7</sup>	27,000	77,000	0	0	27,000
Superior Recharge (modified) <sup>8</sup>	7,120	8,180	0	0	8,180
View from Fontenelle Reservoir <i>DNM</i>	120	220	0	0	220
VRM Class II Lands	681,560	278,300	66,200	387,140	731,640
Within 100 feet of inner gorge of intermittent/ephemeral streams	7,170	4,130	920	2,500	7,550
Within 1/4-mile of Sweetwater River <i>XEROX MAP</i>	1,090	0	0	1,090	1,090
(Recreational part 3.4 miles)					
<i>Total Controlled Surface Use Restrictions</i>	1,189,340	541,320	180,250	533,850	1,255,420
<b>Special Management</b>					
Steamboat Mountain ACEC <sup>7</sup> <i>DEFERRED</i>	43,270	44,190	0	0	44,190
Greater Sand Dunes ACEC <sup>7</sup> <i>DEFERRED</i>	70,850	58,600	13,190	0	71,790
Rock Springs-Green River Expansion area <sup>9</sup>	26,600	13,860	6,570	10,510	30,940
Wind River Front (Western Portion) <sup>10</sup> <i>CSU</i>	172,630	0	29,350	143,390	172,740
<i>Total Special Management</i>	313,350	116,650	49,110	153,900	319,660

1. Lease parcels are designed on aliquot parts. The actual acreage for the lease may vary.
2. Refer to Appendix 2. These requirements apply to all surface disturbing activities.
3. This refers to the populations of those plants designated in the Special Status Plant ACEC. As new populations are identified, their locations will be added to this total.
4. Surface disturbing activities that could adversely affect water quality and wetland and riparian habitat will avoid the area within 500 feet of or on 100-year floodplains, wetlands, or perennial streams. The 100-year floodplains, wetlands, and riparian areas will be closed to any new permanent facilities. Activities could be allowed if a site-specific analysis determines that no adverse Impacts would occur (see the Watershed Management section).
5. All activity will conform with requirements of Class II visual values.

6. This includes the actual plant sites and potential habitat. Acres will change as floristic inventories Identify actual areas with potential. Searches will be required prior to surface disturbance activities.
7. To be determined with completion of a comprehensive and detailed site-specific activity or implementation plan encompassing the combined Steamboat Mountain and Greater Sand Dunes areas.
8. The Ericson Formation recharge area, for the town of Superior sole source aquifer and overlong formations, will be protected through the use of mitigation.
9. Leasing will allow for consultation with local communities, and provide direction to protect public health and safety.
10. Surface disturbing activities will be limited through controlled surface use requirements or closing areas where maximum resource protection is necessary.

For the CSU stipulation dealing with the floodplains, wetlands, and riparian areas (within 500 feet of 100-year floodplains and waters) <sup>4</sup> **AND** Within 100 feet of inner gorge of intermittent/ephemeral streams plot digstreams on bottom in BLACK; add waters in RED by selecting a "P" in the place of the 10 digit attribute; plot floodplain in RED on top. Anything in RED gets buffered by 500 feet. Anything in BLACK gets buffered by 100 feet.

*MSH* – Map by hand from paper maps sent  
*CONF* – Confidential data No mapping permitted  
*XEROX MAP* – Map from xerox map sent  
*DNM* – Do not map

**Cross-referencing table of stipulation code names relative to this study (see resource allocations on Excel spreadsheet accompanying this report).**

**Code name    Stipulation name (see category above)**

- [RS-5] Highly erodible soils
- [RS-7] Sage Grouse Nesting Areas (1 3/4 miles from lek)
- [RS-11]        Historic Trails(1/4 miles of visual horizon)
- [RS-12]        Floodplains, wetlands,and riparian areas (within 500' of 100 year floodplains and waters)
- [Wy-1]        Crucial Moose Winter Range
- [Wy-2]        Crucial Deer Winter Range
- [Wy-3]        Crucial Elk Winter Range
- [Wy-5]        Crucial Antelope Winter Range
- [RS-9]        Raptor Habitat

## **APPENDIX 4**

### **Lease Stipulations Rawlins BLM**

- TLS (1) Mar 1 to Jul 31;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting Sage Grouse nesting habitat. [Stip Code RW-3]
- CSU (1) Surface occupancy or use within 1/4 mile of a sage/sharp-tailed grouse strutting/dancing ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting sage/sharp-tailed grouse breeding habitat.
- 

- TLS (1) Feb 1 to Jul 31;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting Sage Grouse [Stip code RW-3] and Raptor nesting habitat. [Stip code RW-2]
- TLS (1) Nov 15 to Apr 30;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting big game crucial winter range. [Stip codes Wy-1, Wy-2, Wy-3, Wy-4, Wy-5]
- 

- TLS (1) Nov 15 to Apr 30;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting big game crucial winter range.[Stip codes Wy-1, Wy-2, Wy-3, Wy-4, Wy-5]

- TLS (1) Feb 1 to Jul 31;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting Sage [Stip code RW-3]/Sharp- Tailed Grouse nesting habitat.

- CSU (1) Surface occupancy or use will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting Class I and II Visual Resource Management Areas.
- 

- TLS (1) Nov 15 to Apr 30;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting big game crucial winter range.[Stip codes Wy-1, Wy-2, Wy-3, Wy-4, Wy-5]

- TLS (1) Feb 1 to Jul 31;  
(2) as mapped on the Rawlins Field Office Map Overlays;  
(3) protecting Raptor nesting habitat. [Stip code RW-2]

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Coal/Oil and Gas Conflict Special Lease Stipulation

Stipulation 1:

\*CSU

- (1) Surface occupancy or use will be restricted or prohibited within areas of conflict with ongoing mining activities. An acceptable plan of mitigation or anticipated impacts must be negotiated between the oil and gas and coal lessees and approved by the authorized officer;
- (2) legals or entire lease;
- (3) protecting the valid existing rights for coal development and operations on, over, and underlying this lease.

Stipulation 2:

Neither the oil and gas lessee(s), operating rights holders(s), and/or oil and gas operator(s) of this Federal oil and gas lease may conduct any oil and gas operation, including drilling for, removing, or disposing of oil and/or gas in the following lands contained in the Federal coal lease unless a plan for mitigation of anticipated impacts is developed between the oil and gas and the coal lessees, and the plan is approved by the Authorized Officer.

Location stated in Township, Range and Section

If the Authorized Officer (AO) allows oil and gas operations on this lease the AO may alter or modify any oil and gas operations on the lands described in this lease that may interfere with 1) the orderly development of the coal resource by surface and/or underground mining methods; 2) coal mine worker safety; and/or 3) coal production rates or recovery of the coal resource.

The oil and gas lessee(s), operating rights holders(s), and/or oil and gas operator(s) of this Federal oil and gas lease shall not hold the United States as lessor, coal lessee(s), sub-lessee(s), and/or coal operator(s) liable for any damage or loss of the oil and gas resource, including the venting of coal bed methane gas, caused by coal exploration or mining operations conducted on Federal coal lease \_\_\_\_\_.

## Example Lease

WY-0010-042            603.390 Acres  
T.0180N, R.0780W, 06i11 PM, WY  
sec. 022    SESW,NESE,S2SE;  
027    E2E2,NWNE,NENW,SWSE;  
027    SWNE,SEnw,E2SW,NWSE (EXCL  
027    36.61 AC IN MS 422);

Carbon County  
Rawlins FO  
Formerly Lease No.  
Stipulations:  
Lease Notice No. 1

- NSO (1) as mapped on the Rawlins Field Office Map Overlays;  
(2) protecting National Register eligible or listed cultural resource site (enter Serial Number).
- TLS (1) May 1 to Jun 30; (2) entire lease; (3) protecting big game parturition areas.[Stip codes Wy-1, Wy-2, Wy-3, Wy-4, Wy-5]
- TLS (1) Nov 15 to Apr 30; (2) entire lease; (3) protecting big game crucial winter range.[Stip codes Wy-1, Wy-2, Wy-3, Wy-4, Wy-5]
- TLS (1) Mar 1 to Jul 31; (2) entire lease; (3) protecting Sage Grouse nesting habitat.([Stip codes Rw-3])
- TLS (1) Feb 1 to Jul 31; (2) entire lease; (3) protecting Sharp-Tailed Grouse nesting habitat.
- TLS (1) Feb 1 to Jul 31; (2) entire lease; (3) protecting Raptor nesting habitat.[Stip codes Rw-2]
- TLS (1) Feb 1 to Jul 31; (2) entire lease; (3) protecting Sage [Stip codes Rw-2)/Sharp-Tailed Grouse [Stip codes Rw-3) and Raptor nesting habitat.
- TLS (1) Feb 1 to Jul 31; (2) entire lease; (3) protecting Sage/Sharp-Tailed Grouse [Stip codes Rw-3] nesting habitat.
- TLS (1) Feb 1 to Jul 31; (2) entire lease; (3) protecting Sage Grouse [Stip codes Rw-3] and Raptor nesting habitat. [Stip codes Rw-2]
- TLS (1) Feb 1 to Jul 31; (2) entire lease; (3) protecting Sharp-tailed Grouse (Rw-3) and Raptor nesting habitat.[Stip codes Rw-2]
- CSU (1) Surface occupancy or use within 1/4 mile of a sage/sharp-tailed grouse strutting/dancing ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting sage/sharp-tailed grouse breeding habitat.

- CSU (1) Surface occupancy or use will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting Class I and II Visual Resource Management Areas.
- CSU (1) Surface occupancy or use within 500 Feet of the Campground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting Campground and Associated Recreation Values.
- CSU (1) Surface occupancy or use within the (enter constraining resource) will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. This may include development, operations and maintenance of facilities; (2) entire lease; (3) protecting (enter resource value being protected).
- CSU (1) Surface occupancy or use may be restricted or prohibited if paleontological sites exist unless paleontological sites are avoided or the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting (enter paleontological area name) paleontological values.
- CSU Coal/Oil and Gas Conflict Special Lease Stipulation  
(1). Surface use or occupancy shall not be allowed by oil and gas lessee(s), operating rights holders(s), and/or oil and gas operator(s) on this Federal oil and gas lease to conduct any oil and gas operation, including drilling for, removing, or disposing of oil and/or gas contained in the Federal coal lease (enter coal lease number) unless a plan for mitigation of anticipated impacts is developed between the oil and gas and the coal lessees, and the plan is approved by the Authorized Officer.; (2) entire lease; (3) For the purpose of protecting the first in time valid existing rights of the coal lessee, the Authorized Officer reserves the right to alter or modify any oil and gas operations on the lands described in this lease ensuring: a.) The orderly development of the coal resource by surface and/or underground mining methods; b.) Coal mine worker safety; and/or c.) coal production rates or recovery of the coal resource. The oil and gas lessee(s), operating rights holders(s), and/or oil and gas operator(s) of this Federal oil and gas lease shall not hold the United States as lessor, coal lessee(s), sub-lessee(s), and/or coal operator(s) liable for any damage or loss of the oil and gas resource, including the venting of coal bed methane gas, caused by coal exploration or mining operations conducted on Federal coal lease (enter coal lease number).
- CSU (1) Surface occupancy or use within 1/4 mile or visual horizon of trail whichever is closer may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting cultural and scenic values of the (enter historic trail name).
- CSU (1) Surface occupancy or use within the Wind River Front Special Recreation Management Area will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting visual, recreational, watershed, cultural, and wildlife values.

## **APPENDIX 5**

### **Lease Stipulations Kemmerer BLM**

- TLS (1) Feb 1 to Jul 31; (2) as mapped on the Kemmerer RMP stipulations overlay; (3) protecting sage grouse nesting habitat. (Stip code K-7)
- TLS (1) Nov 15 to Apr 30; (2) as mapped on the Kemmerer RMP stipulations overlay; (3) protecting big game crucial winter range. (Stip codes Wy-1, Wy.-2, Wy.-3, Wy-4, Wy 5)
- TLS (1) May 1 to Jun 30; (2) as mapped on the Kemmerer RMP stipulations overlay; (3) protecting big game parturition areas.
- TLS (1) Feb 1 to Jul 31; (2) as mapped on the Kemmerer RMP stipulations overlay; (3) protecting raptor nesting habitat. (Stip code K-4)
- TLS (1) Nov 1 to Apr 1; (2) T. 18 N., R. 120 W., Sec. 18: lot 8,SESW,S2SE; (3) protecting bald eagle roosting areas.
- CSU (1) Surface occupancy or use will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Kemmerer RMP Visual Resource Management overlay; (3) protecting Class I and II Visual Resource Management Areas. (Stip code K-7)
- CSU (1) Surface occupancy or use within ¼ mile of a sage/sharp-tailed grouse strutting/dancing ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Kemmerer RMP stipulations overlay; (3) protecting sage/sharp-tailed grouse breeding habitat.
- CSU (1) Surface occupancy or use within crucial big game winter range will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. This plan may include development, operations, as well as the number, location, and maintenance of facilities; (2) as mapped on the Kemmerer RMP stipulations overlay; (3) limiting winter access, protecting habitat quality, and preventing the loss of crucial big game winter range. (Stip codes Wy.-1,Wy-2, Wy-3,Wy-4, Wy-5)
- CSU (1) Surface occupancy or use within 1/4 mile of the Hams Fork Cutoff of the Oregon Trail will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. This may include development, operations and maintenance of facilities; (2) as mapped on the Oregon/Mormon Pioneer National Historic Trails Management Plan; (3) protecting historic trails T,E,C or Other Species/Habitat: cushion plant communities.

### **Special Lease Notice**

Neither the oil and gas lessee(s), operating rights holder(s), and/or oil and gas operator(s) of this Federal oil and gas lease may conduct any oil and gas operation, including drilling for, removing, or disposing of oil and/or gas in the following lands contained in Federal coal lease WYW-055246 unless a plan for mitigation of anticipated impacts is developed between the oil and gas and the coal lessees, and the plan is approved by the Authorized Officer (AO).

Example:

T. 20 N., R. 117 W., 6th PM, WY

Section 4: lot 8, E1/2SE;

Section 9: E1/2 E1/2;

If the AO allows oil and gas operations on this lease, the AO may alter or modify any oil and gas operations on the lands described in this lease that may interfere with 1) the orderly development of the coal resource by surface and/or underground mining methods; 2) coal mine worker safety; and/or 3) coal production rates or recovery of the coal resource.

The oil and gas lessee(s), operating rights holder(s), and/or oil and gas operator(s) cannot hold the United States (as lessor), coal lessee(s), sub-lessee(s), and/or coal operator(s) liable for any damage or loss of the oil and gas resource, including the venting of coal bed methane gas, caused by coal exploration or mining operations conducted on Federal coal lease WYW-055246.

**Timing Limitations Table**

Affected Areas	Restriction	Restricted Area
Big Game Crucial Winter Ranges	Nov 15 – April 30	Antelope, elk, moose, and mule deer crucial winter ranges
Parturition Areas	May 1 – June 30	Designated parturition areas
Sage Grouse Leks [Stip Code K-7]	Feb 1 – May 15	Within ¼ radius of lek
Sage Grouse Nesting Area[Stip code K-7]	Apr 1 – July 1	Up to 2 mile radius of lek
Golden Eagle Nest [Stip code K-5]	Feb 1 – July 31	Within one-half mile radius
Osprey Nest	Feb 1 – July 31	Within one-half mile radius
Swainson’s Hawk Nest	Feb 1 – July 31	Within one-half mile radius
Ferruginous Hawk Nest [Stip code K-6]	Feb 1 – July 31	Within one mile radius
Coopers Hawk Nest	Feb 1 – July 31	Within one-half mile radius
Burrowing Owl Nest	Feb 1 – July 31	Within one-half mile radius
Merlin Nest [Stip code K-1]	Feb 1 – July 31	Within one-half mile radius
Other raptors [Stip code K-4)	Feb 1 – July 31	Within one-half mile radius
Game Fish Spawning Areas	Spring Spawning Fall Spawning	Determined on case by case basis.

**SEASONAL RESTRICTIONS FOR ALL SURFACE DISTURBANCE ACTIVITIES**

## **APPENDIX 6**

### **Lease Stipulations Bridger-Teton National Forest**

# Bridger-Teton Calibration Area Stipulations

## BRIDGER-TETON NATIONAL FOREST

Cross Reference to Oil & Gas Leasing (FY94)

### NOT AVAILABLE FOR LEASING - GIS MAP 1

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<p>WILDERNESS is any portion of the parcel within MA 91 (Teton Wilderness); MA 92 (Gros Ventre Wilderness); or MA 96 (Bridger Wilderness) DFC's 6A-6D) (p.189)</p> <p>KRUG MEMORANDUM is any portion of the parcel north of the 11<sup>th</sup> Standard parallel (p. 263)</p>	nlwildt	<p>Designated wilderness are legislatively withdrawn from leasing. Unless BLM can identify unavailable lands using a surveyed wilderness boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1/41/4 section containing wilderness lands will not be available for leasing until the wilderness boundary has been surveyed.</p> <p>Within MA 61, lands north of the 11<sup>th</sup> Standard Parallel were withheld indefinitely from leasing by the Krug Memorandum of 1947.</p>	
<p>SHOAL CREEK WSA is any portion of the parcel within the Shoal Creek Wilderness Study Area (MA 93) designated by the 1984 Wyoming Wilderness Act (p.196)</p>	nlwildt	<p>The Shoal Creek WSA is legislatively withdrawn from leasing pending completion of a wilderness study during a future Forest Plan Revision. Unless BLM can identify unavailable lands using a surveyed boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1,4.4 section containing wilderness study area lands will not be available for leasing until the wilderness study area lands will not be available for leasing until the wilderness study area boundary has been surveyed.</p>	
<p>DFC/MA COMBINATIONS is any portion of the parcel within: DFC 2A MA12 (p. 217), MA13 (p.319), MA 35 (p. 299), MA 41 (p. 277), MA 44 (p. 271), MA 47 (p. 287); or DFC 2B MA 35 (p. ), MA 41 (p. 277), MA 44 (p. ), or MA 62 (p. 265); or DFC 4 MA 32, (p. ); or DFC 9A MA 41, (p. ); or DFC 9B MA 41, (p. 277)</p>	nldfc.t		

**NOT AVAILABLE FOR LEASING - GIS MAP 1 (continued)**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<p>MA 32 is any portion of the parcel within the DFC 10 area just south of Alpine (p. )</p>	<p>no GIS</p>	<p>This area is not available for leasing. Unless BLM can identify unavailable lands using a surveyed boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1/41/4 section containing unavailable lands will not be available for leasing unless the DFC and/or MA boundary has been surveyed.</p>	
<p>PERIODIC SPRINGS is any portion of the parcel within the DFC 4 area surrounding Periodic Springs and its recharge area, within MA's 33 and 34 (p. 301, p. )</p>	<p>nla.t</p>	<p>This area is not available for leasing. Unless BLM can identify unavailable lands using a surveyed boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1/41/4 section containing unavailable lands will not be available for leasing unless the DFC and/or MA boundary has been surveyed.</p>	
<p>KENDALL WARM SPRINGS is any portion of the parcel within the 1200 acre area affected by the Kendall Warm Springs withdrawal standard, within MA 72? (p. 287, and ROD Attachment One, p. 4-5)</p>	<p>no GIS</p>	<p>This area is not available for leasing. Unavailable lands will be identified using public land survey lines.</p>	
<p>SWEENEY LAKES is any portion of the parcel within the DFC 2A area around Sweeney Lakes, in MA 73? (p. 289)</p>	<p>nlb.t</p>	<p>This area is not available for leasing. Unless BLM can identify unavailable lands using a surveyed boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1/41/4 section containing unavailable lands will not be available for leasing unless the DFC and/or MA boundary has been surveyed.</p>	
<p>MA 75 is any portion of the parcel within the DFC 2A areas at the head of Big Sandy Creek and at the south end of the Wind River Range? (p. 293)</p>	<p>nlb.t</p>	<p>These areas are not available for leasing. Unless BLM can identify unavailable lands using a surveyed boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1/41/4 section containing unavailable lands will not be available for leasing unless the DFC and/or MA boundary has been surveyed.</p>	

## BRIDGER-TETON NATIONAL FOREST

Cross Reference to Oil & Gas Leasing (FY94)

### NOT AVAILABLE FOR LEASING - GIS MAP 1

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<p>WILDERNESS is any portion of the parcel within MA 91 (Teton Wilderness); MA 92 (Gros Ventre Wilderness); or MA 96 (Bridger Wilderness) DFC's 6A-6D) (p.189)</p> <p>KRUG MEMORANDUM is any portion of the parcel north of the 11<sup>th</sup> Standard parallel (p. 263)</p>	<p>nlwild.t</p> <p>krug.t</p>	<p>Designated wilderness are legislatively withdrawn from leasing. Unless BLM can identify unavailable lands using a surveyed wilderness boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1/41/4 section containing wilderness lands will not be available for leasing until the wilderness boundary has been surveyed.</p> <p>Within MA 61, lands north of the 11<sup>th</sup> Standard Parallel were withheld indefinitely from leasing by the Krug Memorandum of 1947.</p>	
<p>SHOAL CREEK WSA is any portion of the parcel within the Shoal Creek Wilderness Study Area (MA 93) designated by the 1984 Wyoming Wilderness Act (p. 196)</p>	<p>nlwild.t</p>	<p>The Shoal Creek WSA is legislatively withdrawn from leasing pending completion of a wilderness study during a future Forest Plan Revision. Unless BLM can identify unavailable lands using a surveyed boundary, unavailable lands must be identified using public land survey lines. For example, available lands within a 1.41.4 section containing wilderness study area lands will not be available for leasing until the wilderness study area lands will not be available for leasing until the wilderness study area boundary has been surveyed.</p>	
<p>DFC/MA COMBINATIONS is any portion of the parcel within: DFC 2A MA12 (p. 217), MA13 (p.319), MA 35 (p.299), MA 41 (p. 277), MA 44 (p. 271), MA 47 (p. 287); or DFC 2B MA 35 (p. ), MA 41 (p. 277), MA 44 (p. ), or MA 62 (p. 265); or DFC 4 MA 32, (p. ); or DFC 9A MA 41, (p. ); or DFC 9B MA 41, (p. 277)</p>	<p>nlfdc.t</p>		

**ADMINISTRATIVE NO SURFACE OCCUPANCY STIPULATION AREAS - GIS MAP 1 <anso> (continued)**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
MA 22 and MA 49 Is any portion of the parcel located within the bighorn sheep area which straddles the boundary between the two MA's? (refer to O&G Leasing EA's for MA's 22/23 and MA 49)	map1bhs	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect crucial wildlife habitat.	
MA 23 Is any portion of the parcel within the elk feedground located along the Hoback River? (refer to O&G Leasing EA for MA's 22/23)	no GIS	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect the elk feedground.	
MA 26 Is any portion of the parcel within the bighorn sheep area in MA 26? (p. 313)	map1bhs	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect important bighorn sheep habitat.	
COMMISSARY RIDGE is any portion of the parcel located in DFC 12 within 1 mile of the crest of Commissary Ridge, in MA 11 or MA 12? (p. 315, O&G Leasing EA for MA 12)	nso6.t	Areas affected which are available for leasing require a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect DFC 12 areas near Commissary Ridge.	
SALT RIVER OR WYOMING RANGE CRESTS Is any portion of the parcel within 0.5 miles of the crests of the Salt River or Wyoming Ranges in MA's 11, 22, 23, 24, 25, 26, 31, 32, 33, 34, 35, 48, or 49? (p. )	no GIS	Areas affected which are available for leasing require a No Surface Occupancy Stipulation, which prohibits surface occupancy. The one-mile-wide strip along the crests is protected in order to maintain the quality of recreation experiences, including the National Recreational Trail along the crest of the Wyoming Range.	
WILD & SCENIC RIVERS Is any portion of the parcel within an area which requires a No Surface Occupancy Stipulation in order to protect watercourses eligible for designation? (refer to Forest Plan Amendment No. 2, p. )	no GIS	Areas identified require a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect watercourses eligible for designation.	
NATIONAL TRAILS Does any portion of the parcel contain designated or proposed National Recreational, Scenic or Historic Trails? (p. 141.)	no GIS	Trails affected require a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to maintain the quality of recreation experiences.	
RESEARCH NATURAL AREAS Is any portion of the parcel within a designed, proposed, or candidate Research National Area? (p. <fwaoma>	map1ma	Areas affected require a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to maintain the area in its natural condition.	

### TIMING STIPULATION AREAS - GIS MAP 2

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
JACKSON ELK HERD Is any portion of the parcel within crucial elk winter range in MA'S 42, 43, 44, 45, 46, AND 71? (p. 261, 267, 269, 271, 273, 279, Appendix B, p. 9, and ROD Attachment One, p. 5)	map2jeh	These areas require a Jackson Elk Herd Stipulation, which, restricts activity and disturbance between November 15 and April 30 in order to protect the Jackson Elk Herd and its crucial winter range.	
CRUCIAL WINTER RANGES Is any portion of the parcel within crucial winter range (excluding crucial winter ranges requiring a No Surface Occupancy Stipulation, and excluding elk winter ranges within MA's 42, 43, 44, 45, 46, and 71 which require the Jackson Elk Herd Stipulation)? Check G&F maps accepted by the FS as the official maps. (p. 124)	map2cwrstip	These areas require a Timing Stipulation, which restricts human activity and disturbance between November 15 and April 30 if big game are present in the area, in order to protect wintering big game.  Same as above with specie lines dissolved for cleaner plots.	
ELK CALVING AREAS Is any portion of the parcel within an elk calving area? (p.124)	map2cwr map2epa	These areas require a Timing Stipulation, which restricts human activity and disturbance between May 15 and June 30 of elk are present in the area	
BIG GAME PARTURITION AREAS Is any portion of the parcel within a parturition (birthing ) area for any other big game animals? (p. )	no GIS	These areas require a Timing Stipulation, which restricts human activity and disturbance between May 15 and June 30 if specified big game animals are present in the area.	Requires IDT
GRIZZLY BEAR Is any portion of the parcel within DFC 7A or DFC 7B in MA's 45, 61, or 62? (P. 204, 210-211)	no GIS	These areas require a Timing Stipulation, which restricts human activity and disturbance between May 15 and June 30 if specified big game animals are present in the area. The Timing Stipulation can be applied within all, parts, or none of DFC 12, as appropriate, in order to protect wildlife values.	Requires IDT
DFC 12 Is any portion of the parcel within DFC 12? (p. 245, and the Regional Forester's Conveyance Letter of 2/20/90, p. 18)	no GIS		Requires IDT

### CONTROLLED SURFACE USE STIPULATION AREAS - GIS MAP 3

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
GRIZZLY BEARS Is any portion of the parcel within DFC 7A or DFC 7B, in MA's 45, 61, or 62? (p. 204, 210-211, Appendix B, p. 8-9)	csu	These areas require a Controlled Surface Use Stipulation, to mitigate the effects of roading , exploration, and development on the grizzly bear, minimize human-grizzly contact, end facilitate the recovery of the grizzly bear.	
MA 11 Is any portion of the parcel within _____? (p. )	no GIS	This area requires a Controlled Surface Use Stipulation, to _____.	

**CONTROLLED SURFACE USE STIPULATION AREAS - GIS MAP 3 (continued)**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
MA 13 Is any portion of the parcel within crucial elk winter range located on Tump Ridge? (p. 319)	no GIS: D1	This area requires a Controlled Surface Use Stipulation. Impacts on wildlife are mitigated by requiring off-site production facilities.	
MA 21 Is any portion of the parcel within crucial elk winter range located on Raspberry Ridge? (p. 305)	map3csu21	This area requires a Controlled Surface Use Stipulation. Impacts on wildlife are mitigated by requiring off-site production facilities.	
DFC 12 Is any portion of the parcel within DFC 12? (p. 245, and the Regional Forester's Conveyance Letter of 2/20/90, p. 18)	no GIS	This area requires a Controlled Surface Use Stipulation can be applied within all, parts, or none of DFC 12, as appropriate, in order to mitigate effects on wildlife.	Requires IDT

**OTHER STIPULATION AREAS - GIS MAP 3**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
BRIDGER-TETON NATIONAL FOREST Does the parcel contain lands administered by the Bridger-Teton National Forest? (refer to Forest Plan Amendment No. 1, and Appendix B, p. 3)	no GIS	The Stipulation for Lands Administered by the Bridger-Teton National Forest is required. The USDA Standard Stipulation also is required.	
TETON NATIONAL FOREST Is any portion of the parcel within the Teton National Forest? (Appendix B, p. 12-13)	Jhasnl	The Jackson Hole Area Stipulation is required for all lands south of the 11 <sup>th</sup> Standard Parallel, within the Teton National Forest, which are available for leasing, the wording for this stipulation was established by the Krug Memorandum of 1947.	
PALISADES WSA Is any portion of the parcel within the Palisades Wilderness Study Area (MA's 95 and 95)? (p. 257, Appendix B, p. 10-11)	pal	The Palisades Conditional No Surface Occupancy Stipulation and the Palisades Coordinated Exploration Stipulation are required for the Palisades Wilderness Study Area in order to protect special resource values and maintain eligibility for Congressional designation as a wilderness.	
GRIZZLY BEAR Is any portion of the parcel within DFC 7A or DFC 7B, in MA's 45, 61, or 62? (p. 204, 210-211, Appendix B, p. 8-9)	griz	This area requires the Grizzly Bear Conditional No Surface Occupancy Stipulation, to ensure the continued recovery of the grizzly bear if it is delisted.	Not standard plot

**LEASE NOTICE AREAS - GIS MAP 4 and Others**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<b>RESTRICTED OR PROHIBITED ACCESS</b> Would access to this parcel need to cross any area which is not available for leasing, or which is available for leasing only what technical no surface occupancy, special "lakes" no surface occupancy, no surface occupancy, or conditional no surface occupancy stipulation? (refer to Forest Plan Amendments No. 1)	no GIS	Review the Forest-wide, Management Area, and Desired Future Condition direction for the area involved, to determine what restrictions and conditions. If any, apply to new road construction. If standards may preclude, or will preclude road access to a well location, or if steep slopes, unsuitable soils or landslides surround the area, use a Lease Notice for Difficult or impossible Access to make the leaseholder aware that road access to the parcel may be difficult or impossible.	
<b>VISUAL QUALITY OBJECTIVES</b> Have visual quality objectives been adopted? (refer to Forest Plan Amendment No. 1)	no GIS	Consider whether the Lease Notice for Visual Quality Objectives needs to be required for this parcel.	
<b>THREATENED OR ENDANGERED SPECIES</b> Are there any concerns related to a Threatened or Endangered Species? (refer to Forest Plan Amendment No. 1)	map4birds	Consider whether the Lease Notice for Threatened and Endangered Species needs to be required for this parcel. Identify the species of concern on the notice, i.e., grizzly bear, bald eagle, peregrine falcon, trumpeter swan, or whooping crane.	
<b>SENSITIVE SPECIES</b> Are there any concerns related to a Sensitive Species? (refer to Forest Plan Amendment No.1)	no GIS	Consider whether the Lease Notice for Sensitive Species needs to be required for this parcel. Identify the species of concern on the notice.	
<b>OLD GROWTH</b> Does any portion of the parcel contain old growth stand(s) which need to have old growth management emphasized? (p. 129, O&G Leasing EA for MA 12)	no GIS	Consider whether the Lease Notice for Old Growth Stands needs to be required for this parcel.	Requires IDT validation

**OTHER CONCERNS - DETERMINE WHETHER A FOREST PLAN AMENDMENT IS NEEDED**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<b>CULTURAL, HISTORICAL, OR PALEONTOLOGICAL RESOURCES</b> Are there any special concerns that are not addressed by the standard lease terms?	proprietary	Consider whether a special lease notice or stipulation is needed.	In GIS, only accessible by Forest Archeologist
<b>COORDINATION</b> Is any portion of the parcel within 1 mile of lands administered or regulated by another FS unit or another agency?	no GIS	Confer with any adjoining unit or other agencies to document management needs and/or coordinate leasing analyses.	

**OTHER CONCERNS - DETERMINE WHETHER A FOREST PLAN AMENDMENT IS NEEDED (continued)**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<p>NATIONAL SCENIC BYWAYS Has any portion of the parcel been designated as a National Scenic Byway? (ROD Attachment One, p. 2)</p>	no GIS	Consider whether a special lease notice or stipulation is needed. Consider with any adjoining unit or other agencies to document management needs and/or coordinate leasing analyses.	Required IDT
<p>GRAND TETON NATIONAL PARK VISUAL QUALITY STANDARD Is any portion of the parcel visible from the Signal Mountain Overlook? Can any portion of the parcel be seen by boaters along the Snake River or motorist along roads within Grand Teton National Park? Is the parcel within MA's 43, 61, or 62? (ROD Attachment One, p. 4)</p>	no GIS	Consider whether a special lease notice or stipulation is needed. Consider with any adjoining unit or other agencies to document management needs and/or coordinate leasing analyses.	Required IDT
<p>OTHER VISUAL QUALITY CONCERNS Are there any concerns that are not addressed?</p>	no GIS	Consider whether a special lease notice or stipulation is needed.	Required IDT
<p>SPECIAL AREAS (NATIONAL LANDMARKS) Does an existing or proposed National Natural Landmark occur within any portion of the parcel? (48, 142)</p>	no GIS	Consider whether a special lease notice or stipulation is needed in order to preserve the integrity of the landmark.	Required IDT
<p>WILD &amp; SCENIC RIVERS Does the parcel contain water courses eligible for designation or is the parcel located very near water courses eligible for designation? (refer to Forest Plan Amendment No. 2, p. )</p>	no GIS	Consider whether a special lease notice or stipulation is needed.	Required IDT
<p>OTHER CONCERNS Are there any other concerns or possible cumulative effects not mentioned above?</p>	no GIS	Consider whether a special lease notice or stipulation is needed.	Requires IDT

**ADMINISTRATIVE NO SURFACE OCCUPANCY STIPULATION AREAS - GIS MAP 1 <anso> (Continued)**

ITEM OF CONCERN	GIS FILE	MITIGATING MEASURES	ACTION
<p><b>DFC 9A AND DFC 9B</b> Is any portion of the parcel within DFC 9A or DFC 9B, except in MA's 41 and 73? (p. 224, 229, 277, and 289)</p>	nsodfc.t	These areas require a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect campgrounds, other developed recreational sites, special use recreation areas, and administrative sites.	
<p><b>MA 22</b> Is any portion of the parcel within the DFC 2B area located along the Hoback River? (p. 275)</p>	nso3.t	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to maintain the quality of recreation experiences.	
<p><b>MA's 33 AND 34</b> Is any portion of the parcel within DFC 4, except the DFC 4 area surrounding Periodic Springs? (p. 181, 301, )</p>	nsodfc4.t	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect quality water quality.	
<p><b>MA 72</b> Is any portion of the parcel within the DFC 2B, DFC 9A, or DFC 9B areas near New Fork Lakes, that are not within 1000 feet of the shorelines? (p. 287, Appendix B p. 7)</p>	nso lakes.t	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to maintain the quality of recreation experiences and protect developed sites.	
<p><b>MA 73</b> Is any portion of the parcel within: the DFC 2A area near Fremont Lakes, that is not within 1000 feet of the shoreline; the DFC 2B areas near Fremont and Boulder Lakes, that are not within 1000 feet of the shorelines; or the DFC 9A and DFC 9B areas near Half Moon and Burnt Lakes, that are not within 1000 feet of the shorelines (p. 289, Appendix B, p. 7)?</p>	No GIS	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to maintain the quality of recreation experiences and protect developed sites.	
<p><b>MA 75</b> Is any portion of the parcel within the DFC 2A area located west of Pool Creek? (P. 293)</p>	nso3.t	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to maintain the quality of recreation experiences.	
<p><b>IDENTIFIED CRUCIAL WINTER RANGES</b> Is any portion of the parcel located within:  <b>MA 12</b> - Crucial elk winter range on Absaroka Ridge, west of Mahogany Ridge (p. 317); &lt;map\cw12&gt; or  <b>MA 33</b> - Crucial winter ranges along the Afton Front (p. 301); &lt;map\cwaf&gt; or  <b>MA 34</b> - Crucial winter ranges along the Afton Front (p. 303); &lt;map\cwaf&gt; or  <b>MA 41</b> - Crucial elk, deer, and moose winter ranges along the Snake and Hoback Rivers (p. 277); &lt;mat\cw41&gt; or  <b>MA 47</b> - Crucial winter ranges (p. 281); &lt;map\cw47&gt; or  <b>MA 48</b> - Crucial elk, deer, and moose winter ranges along the Snake and Hoback Rivers; or in a designated area surrounding a bald eagle nesting territory (p. 283)? &lt;map\cw48&gt;</p>	map\cw12 map\cw47	This area requires a No Surface Occupancy Stipulation, which prohibits surface occupancy, in order to protect crucial big game winter ranges.	

**Cross-referencing table of stipulation code names relative to this study (see resource allocations on Excel spreadsheet accompanying this report).**

<b>Code name</b>	<b>Stipulation name (see item of concern in tables above)</b>
[BT-19]	NAA Krug Memorandum
[BT-8]	NAS DFC/MA Combinations
[BT-11]	NAS Periodic springs
[BT-9]	NAS Sweeny Lakes
[BT-1]	NAA Steep slopes, unstable soils, landslide areas
[BT-7]	NAA Fremont Lake
[BT-2]	NAA Mew Fprl, Wo;;pw, Half Moon, Burnt and Boulder lakes
[BT-6]	NAA Recreation areas ans DFC/MA combinations
[BT-3]	NAA DFC 3
[BT-18]	NAA Big Horn Sheep Area
[BT-6]	NAA Salt River or Wyoming Range Crest
[BT-17]	NAA Research natural areas
[BT-15]	TLS Jackson Elk heard Nov 15 to Apr 15
[Wy-1,Wy-2, Wy-3,Wy-4, Wy-5,]	TLS Big game crucial winter range Nov 15 to Apr 30
[BT-16]	TLS Elk calving area May 15 to Jun 15
[BT-21]	NSO Grizzly Bear
[BT-14]	CSU Crucial elk winter range
[BT-10]	NAS Teton National Forest
[BT-12]	NAA Palisades Wilderness Study Area
[BT-12]	NAA Grizzly Bear
[BT-12]	NAA Threaten or Endangered Species
[BT-4]	NAA DCF's 9A,9B, MA's 33,34
[BT-2]	NAA MA 72
[Wy-1,Wy-2, Wy-3,Wy-4, Wy-5,]	TLS Big game crucial winter ranges Nov 15 to Apr 30

## **Appendix 7**

### **Medicine Bow-Routt National Forest Lease Stipulations**

<b>Stipulation</b>	<b>Area/Resource to be Protected</b>
<b>NSO Stipulation [Stip code RT-3]</b>	Heritage Resource Areas over 40 acres Developed Recreation Sites High Erosion Hazard Soils High Geologic Hazard Slopes over 60% Bear River Corridor Eligible Wild and Scenic River Research Natural Area Backcountry Nonmotorized and Motorized Recreation Municipal Watersheds
<b>Timing Stipulation [ Stip code RT-4]</b>	Wildlife - Grouse Production Area Wildlife - Big Game Winter Range Wildlife - Big Game Birthing Area Known Active Raptor Nests
<b>CSU Stipulation [Stip code RT-1]</b>	Slopes 40 - 60% Erosive and Hydric (wet) Soils Alpine Environments Visual Resources Sensitive Watersheds Developed Recreation Sites Cutthroat Trout Habitat Shorty/Cataract Unique Natural Area Special Interest Areas Residential Interface
<b>Lease Notice</b>	Special Uses Threatened and Endangered Species Vegetation (active/planned timber sales)
<b>Standard Lease Terms</b>	Air Heritage Resources under 40 acres Range Vegetation Special-Uses

Resource: Soils/Slopes

Stipulation: NSO for areas with slopes 60 percent or greater and high erosion or geological hazard.

Zones Found: 1, 2, 3, and 4.

Justification: This stipulation is needed for the basic protection of soil and water resources. Soil disturbance for well pad development in these locations is very difficult to reclaim and results in unacceptable soil loss. This disturbance may also adversely affect slope stability and increase the potential for mass movements.

The less restrictive stipulations of CSU and timing are not applicable. The CSU stipulation is for operational guidance; use and occupancy is allowed. The timing stipulation prohibits use during specified time period. In this case, the protection is required year-round and is only achieved with NSO.

Application Methodology: Applying this stipulation to specific lands is very basic, using quad maps, aerial photos, and field verification. It is one of the first criteria looked at when processing a lease. Rarely will an entire lease be NSO for soils/slope concerns. The resource quad maps in the planning record will be used for locating soils and slope NSO stipulations where they exist in areas over 40 acres. Where these criteria exist in areas less than 40 acres, standard lease terms will provide the Forest Service with the authority needed to prohibit surface occupancy on those areas.

Conditions for WEMs: Waivers, exceptions, or modifications would rarely be granted in these situations, as steep slopes are a fixed condition over the life of a lease. In the event that too broad an area was stipulated and the operator found an acceptable location of less than 60 percent at APD stage, an exception would be feasible.

Resource: Soils/Slopes

Stipulation CSU for areas 40-60 percent slopes, moderate erosion or geologic hazard and hydric soils.

Zones Found: 1, 2, 3 and 4

Justification: The CSU stipulation is needed in these areas because strict environmental controls are necessary to prevent adverse environmental consequences. Surface occupancy will be allowed, but the manner in which development activities will be permitted will be more restricted than standard lease terms would permit.

Application methodology: Applying this stipulation to specific lands is very basic, using quad maps, aerial photos, and field verification. It is one of the first criteria looked at when processing a lease. Rarely will an entire lease be CSU for soils/slope concerns.

The resource quad maps in the planning record will be used for locating soils and slope NSO stipulations where they exist in areas over 40 acres. Where these criteria exist in areas less than 40 acres, standard lease terms will be enforced, and controlled surface use will be allowed.

Conditions for WEMs: This is the same as NSO soil/slope stipulation described previously.

Resource: Alpine Environments

Stipulation: CSU

Zones Found: 2 and 3

Justification: The CSU stipulation is needed in these sensitive ecosystems due to the limited revegetation potential. The CSU stipulation will be used to require any revegetation technique needed to ensure revegetation in these environments. It will also allow for site relocation beyond that which is permitted in the standard lease terms.

Application Methods: Soil mapping units were used to identify the alpine areas. Some of the alpine environments in the analysis areas fall within a 60 or greater slope class and are NSO because of that criteria. Approximately 4,500 acres of alpine lands will be covered by this CSU stipulation.

Condition for WEMs: Waivers, exceptions and modifications are not expected in the alpine environments. If the operator demonstrates that the values can be maintained and that revegetation can be accomplished, and this is confirmed through Forest Service analysis, an exception may be feasible.

Resource: Developed Recreation Sites (campgrounds, picnic areas, trail heads)

Stipulation: NSO for 1/4 mile around sites ( CSU for 1/4 mile around NSO)

Zones Found: 1, 2, 3, and 4

Justification: The combination of these two stipulations is necessary to protect the setting in developed sites and to maintain and enhance the recreation opportunities, including the visual setting and audible and olfactory environments. This stipulation will also ensure the safety of Forest visitors.

The less restrictive stipulations of timing or all CSU will not prevent possible adverse impacts to this resource because timing and CSU are operational stipulations which allow surface occupancy. Any surface occupancy may result in adverse impacts to the recreation resource.

Application Methodology: To apply this stipulation combination to develop recreation sites, the interdisciplinary team identifies the sites to be protected.

Conditions for WEMs: Waivers, exceptions, and modification will rarely occur. This one stipulation where an exception might be granted is if the stipulation is applied over a broad area and the operator can demonstrate that the values stated above can be met by siting the development within the NSO area. The stipulation may be waived if a recreation site is removed from the recreation management inventory.

Resource: Wildlife (Raptors Including Golden Eagles, Osprey, Hawks, Owls, and Falcons, **except** Peregrine)

Stipulation: Timing (no activity between February 1 and August 15) within 1/4 miles of known active nest sites.

Zones Found: 1, 2, and 3

Justification: This stipulation is necessary to protect nesting potential for these species. A 1/4 mile no-disturbance buffer around these sites while they are active will ensure their solitude and maintain the viable nesting habitat.

Application Methodology: This stipulation is applied to known active sites of these species. Active means the site is used periodically (some species rotate two or three nesting sites over the years) and maintained in a usable condition. The active status must be field-verified no earlier than May 15.

All disturbance zones are line-of-sight distance up to 1/4 mile. If topography or vegetation provides screening, this distance may be reduced, provided analysis concludes that site integrity can be maintained.

Application of this stipulation would rarely prohibit surface occupancy somewhere on a lease or a typical 320-acre well spacing unit.

Conditions for WEMs: Waivers, exceptions, or modifications could be granted in the event that a site existing at the time of the lease issuance is totally abandoned or destroyed. The timing stipulation may be modified if topographic barriers or vegetative screening can be utilized to protect the value of the nest site. If the lessee demonstrates that the values can be maintained while conducting operations within the restricted times for an active nest, and analysis concurs, an exception may be granted.

Resource: Wildlife (Critical Habitat)

Stipulation: Timing

Big Game Production Areas: No activity May 1 to July 30

Big Game Winter Range - December 15 through May 15  
Greater Sandhill Cranes Nesting areas - May 1 through July 1  
Grouse Breeding Complex - March 1 through June 30

Zones Found: 1, 2, 3, and 4

Justification: These timing stipulations are necessary to protect the breeding potential and winter survival of these species. Disturbances during critical times may place unnecessary stress on the particular species being protected and cause an increase in mortality.

Application Methodology: These critical habitats have been identified using Forest Service and Colorado Division of Wildlife data. The areas identified are the most important areas for production, nesting, and wintering of these particular species mentioned. In addition, the big game winter range timing stipulation would be applied to any area allocated to Management Area Prescription 5.41 (Deer and Elk Winter Range).

Conditions for WEMs: If the lessee demonstrates that operations can be conducted in a manner which protects the wildlife habitat values present, an exception would be feasible.

Resource: Heritage Resource Sites over 40 acres (Park and Teller City Historic Mining Towns and Windy Ridge paleontological site)

Stipulation: NSO

Zones Found: 3 and 4

Justification: Park and Teller City are historic mining towns. Windy Ridge is the site of a quarry for Indian tools. The significance of these sites is well documented. These sensitivity and density of these sites require the NSO stipulation for protection.

Less restrictive stipulations will not be adequate for protection of the sites.

Application Methodology: The stipulation will be applied around these sites.

Conditions for WEMs: Waivers, exceptions, or modifications are not expected for this stipulation.

Resources: Visually Sensitive Lands

Stipulations: CSU - Modification to siting and design of development activities in order to meet the visual quality objectives.

Zones Found: 1, 2, 3, and 4

Justification: Areas on the Forest with high scenic and recreational values may require

screening, buffering, or site relocation beyond that which is allowed under the standard lease terms.

Application Methodology: This stipulation is applied to areas allocated to Management Area Prescriptions 4.2 (Scenery and Major Transportation Corridors) or 4.3 (Dispersed Recreation) or other areas with a visual quality objective of partial retention. In order to meet the visual quality objective in areas of retention and/or partial retention or to maintain the recreational values. It may be necessary to modify the siting or design of proposed development activities. This stipulation gives the Forest Service the authority to relocate the site or modify the timing more than it permitted in the standard lease terms to meet the retention objective.

Conditions for WEMs: A waiver, exception, or modification to this stipulation may be granted if the analysis of proposed development shows that an activity will not violate the visual quality objective of retention.

Resource: Sensitive Watersheds

Stipulation: CSU - Best management practices (BMPs) are required to protect resource.

Zones Found: 1, 2, 3, and 4

Justification: In watersheds identified as sensitive, further increase in water yield and sediment may cause adverse impacts. The CSU stipulation gives the lessor the ability to apply the necessary BMPs to prevent further degradation of these watersheds.

Application Methodology: The HYSED model has been used to determine watershed sensitivity.

Conditions for WEMS: Waivers, exceptions, or modifications would be considered if analysis of specific proposals discloses that watersheds are no longer sensitive. In this case, a waiver of the stipulation is feasible. No other waivers, exceptions, or modifications are expected because the CSU stipulation gives the lessor more authority to require operational practices to protect the resource. If proposed activity does not require stricter operational guidelines, the initial guidelines would be approved, but the stipulation would not change.

Resource: Fisheries - Colorado River Cutthroat Trout Habitat (CRCT)

Stipulation: CSU - BMPs are required to protect known and suspected CRCT habitat. Surveys to identify remnant populations of the trout may be request prior to issuance of a Permit to Drill.

Zones Found: 1, 2, 3, and 4

Justification: The CRCT is classified as a Federal Category II Candidate Species for listing as Threatened or Endangered and is classified by the state of Colorado as

Threatened. Little is known about the specific habitat requirements of the CRCT or the present distribution and security of the remaining populations. It is suspected that other populations, unknown at this time, could be detected by surveys conducted in the analysis area prior to issuance of a Permit to Drill. BMPs must be used in areas where activity could potentially affect known and suspected populations of CRCT. These BMPs will be used to minimize erosion, prevent sediment from entering perennial and intermittent stream courses, avoid stream crossings, and ensure protection of flood plains, riparian zones, and water quality.

Application Methodology: Certain 4<sup>th</sup> order watersheds on the Forest are known to harbor populations of CRCT. Surveys to detect additional populations within these watersheds and elsewhere on the Forest are ongoing. If a Permit to Drill is requested in an area that has not been surveyed, the Forest will need to complete a survey to determine if CRCT exist in the zone of influence of the proposed project. This survey will also identify the anticipated effects of the proposed action on CRCT or its habitat. The zone of influence of oil and gas exploration activities can only be determined when an analysis is conducted on the surface use plan of operations submitted when a lessee applies for a Permit to Drill. If the time and funds are not immediately available for the Forest to conduct a survey, the lessee may be requested to assist in the survey or face a delay in the issuance of the permit. If the survey of the potential CRCT habitat determines that the proposed action may have an adverse effect on CRCT even if BMPs are followed, additional restrictions or denial to the lessee's proposal may result.

Conditions for WEMs: In some case, BMPs in CRCT habitat may not be required if the proposed development will not directly or indirectly impact any streams within the watershed. If surveys for CRCT occurrence have already been completed in the analysis area of the proposed action, not further survey will be requested, although BMPs may still be required.

Resource: Shorty/Cataract Unique Natural Area

Stipulation: CSU

Zones Found: 1

Justification: This area contains unique species richness and diversity, an abundance of riparian vegetation and associated species, and numerous ponds and beaver-enhanced wetlands.

The CSU stipulation is needed in this area to ensure that this unique ecosystem is protected through the use of nontraditional site design, access design, or site location practices. The BMPs that will prevent destruction of this ecosystem and its components will be required. These practice may include such things as restricting road development to areas that have already been impacted by past road construction, restricting roads to locations less than 40% slope, not approving road construction on hydric soils or where soils are susceptible to mass movement etc.

Application Methodology: This unique area exists on approximately 6,000 acres in Zone 1. The CSU stipulation will not prohibit surface occupancy somewhere on a 320-acre spacing unit.

Conditions for WEMs: Waivers, exceptions, or modifications to this stipulation are not expected.

Resource: Eligible Wild and Scenic Rivers

Stipulation: NSO

Zones Found: 1 and 4

Justification: The NSO stipulation is required to maintain the river segment in a condition that makes it eligible for wild and/or scenic designation. This can be accomplished with the NSO stipulation.

Application Methodology: This stipulation is applied to areas allocated to management area prescriptions 1.5 (National River System - Eligible Wild Rivers) and 3.4 (National River System - Eligible Scenic Rivers). This stipulation would not prohibit surface occupancy somewhere on a 160 well spacing unit.

Resource: Research Natural Areas

Stipulation: NSO

Zones Found: 4

Justification: The stipulation is required to protect the natural condition for which an area has been proposed as Research Natural Area. Activities other than research and study are limited to those which do not destroy the natural vegetation. Roads and facilities are not allowed with the Research Natural Area. NSO is appropriate because it will not allow occupancy in these natural areas, thereby protecting areas for study. Standard lease terms or other stipulations would be inadequate because occupancy would be allowed, disturbing and impacting the natural functions of the ecosystem.

Application Methodology: This stipulation is applied to those areas allocated to Management Area Prescription 2.2 (Proposed Research Natural Area).

Conditions for WEMs: Waivers, exception, or modifications to this stipulation will be considered only at the time operations are proposed and will be subject to the forest plan in effect at the time of consideration. Granting of a WEM should not be expected in these areas.

Resource: Backcountry Nonmotorized and Motorized Recreation

Stipulations: NSO

Zones Found: 1, 2, 3, and 4

Justification: The NSO Stipulation is required to protect the backcountry nature and experience within these undeveloped areas. Backcountry prescriptions areas are generally unroaded, natural-appearing, and have little evidence of recent human-caused disturbance. The NSO stipulation would be the most appropriate stipulation to protect these backcountry values. Surface disturbances of any kind would affect the nature and recreation potential of these areas. Standard lease terms, CSU, or timing stipulations would all allow occupancy, but would not protect the backcountry experience. NSO allows these lands to be leased, while protecting and maintaining their undeveloped settings.

Application Methodology: This stipulation is applied to areas allocated to Management Area Prescriptions 1.32 (Backcountry Recreation - Nonmotorized) and 3.31 (Backcountry Recreation - Motorized).

Conditions for WEMs: Waivers, exception, or modifications to this stipulation will be considered only at the time operations are proposed and will be subject to the forest plan in effect at the time of consideration. Granting of a WEM should not be expected in these areas.

Resource: Municipal Watersheds

Stipulation: NSO

Zone Found: 4

Justification: The NSO stipulation is required to protect the high quality water that is produced in the watershed. Surface disturbance of any kind would affect the quality of water supplied to the Steamboat Springs area. Standard lease terms, CSU, or timing stipulations would all allow occupancy but would not protect the high quality water values. NSO allows these lands to be leased, while protecting and maintaining the high-quality water that is produced in the watershed.

Application Methodology: This stipulation is applied to areas allocated to Management Area Prescription 3.23 (Municipal Watersheds - Water Quality Emphasis).

Conditions for WEMs: Waivers, exception, or modifications to this stipulation will be considered only at the time operations are proposed and will be subject to the forest plan in effect at the time of consideration. Granting of a WEM should not be expected in these areas.

Resource: Special Interest Areas

Stipulation: CSU

Zones Found: 1, 3, and 4

Justification: Areas on the Forest that have unique setting or unusual characteristics may require screening, buffering, or site relocation beyond that which is allow under the standard lease terms.

Application Methodology: This stipulation is applied to areas allocated to Management Area Prescription 2.1 (Special Interest Area). In order to protect the attributes that led to the designation of the special interest area, it maybe necessary top modify the siting or design of proposed development activities. This stipulation gives the Forest Services the authority to relocate or modify the site more than is permitted in the standard lease terms.

Conditions for WEMs: Waivers, exception, or modifications to this stipulation will be considered only at the time operations are proposed and will be subject to the forest plan in effect at the time of consideration. Granting of a WEM should not be expected in these areas.

Resource: Residential Interface

Stipulation: CSU

Zones Found: 1, 2, 3, and 4

Justification: Areas of forest ownership intermingled with private lands may require screening, buffering or site relocation beyond that which is allowed under the standard lease terms.

Application Methodology: This stipulation is applied to areas allocated to Management Area Prescriptions 7.1 (Residential/Forest Interface). In order to protect the private residence from being impacted by oil and gas development, it may be necessary to modify the siting or design of proposed development activities. This stipulation gives the Forest Service the authority to relocate or modify the site more than it permitted in the standard lease terms.

Conditions for WEMS: Waivers, exception, or modifications to this stipulation will be considered only at the time operations are proposed and will be subject to the forest plan in effect at the time of consideration. Granting of a WEM should not be expected in these areas.

## **APPENDIX 8**

### **Lease Stipulations BLM Office for the State of Wyoming**

Stipulations: Lease Notice No. 1 Special Lease Notice:  
(Enter Special Stipulation Notice)

- NSO (1) as mapped on the (Enter map name); (2) protecting National Register eligible or listed cultural resource site (Enter Serial Number).
- NSO (1) as mapped on the (Enter map name, legal description or Entire lease); (2) protecting (Enter Resource Value being Protected).
- TLS (1) May 1 to Jun 30; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting big game parturition areas.
- TLS (1) Nov 15 to Apr 30; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting big game crucial winter range. [Stip codes Wy-1, Wy-2, Wy-3, Wy-4, Wy-5]
- TLS (1) Mar 1 to Jun 30; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Sage Grouse nesting habitat.
- TLS (1) Feb 1 to Jun 30; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Sharp-tailed Grouse nesting habitat.
- TLS (1) Feb 1 to Jul 31; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Raptor nesting habitat.
- TLS (1) Feb 1 to Jul 31; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Sage/Sharp-tailed Grouse and Raptor nesting habitat.
- TLS (1) Mar 1 to Jun 30; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Sage/Sharp-tailed Grouse nesting habitat.
- TLS (1) Feb 1 to Jul 31; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Sage Grouse and Raptor nesting habitat.
- TLS (1) Feb 1 to Jul 31 (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Sharp-tailed Grouse and Raptor nesting
- TLS (1) (Enter Dates Resource Value needs to be protected); (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting (Enter Resource Value being Protected).
- CSU (1) The lease area may contain habitat for the threatened, endangered, candidate, or other special status plant and animal species listed below. Exploration and development proposals may be limited, or modifications required, or prohibited altogether, if activity is planned within the habitat boundaries of a threatened, endangered, candidate, or other special status plant/animal species as it then exists. Upon receipt of a site specific

proposal, the authorized officer will review current inventory records of each location and may require that further localized surveys be performed to assure no threatened, endangered, candidate (category 1 or 2), proposed, or other special status species or habitat are present. (ENDANGERED SPECIES ACT OF 1973 AS AMENDED SECTIONS 2 AND 7.);

(2) as mapped on the (Enter map name, legal description or Entire lease);

(3) protecting (Enter name of species).

CSU (1) Surface occupancy or use within 1/4 mile of a Sage/Sharp-tailed Grouse strutting/dancing ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting sage/sharp-tailed grouse breeding habitat.

CSU (1) Surface occupancy or use will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting Class I and II Visual Resource Management Areas.

CSU (1) Surface occupancy or use within (Select 500 ft., 1/4 mile, 1/2 mile or type in other distance) of the (Select Campground, North Platte River or type in other) will be restricted or prohibited unless the operator and surface managing agency arrive at, an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting (Select Campground, Bald Eagle Feeding Areas or type in other).

CSU (1) Surface occupancy or use within the (Enter name of constraining resource) will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. This may include development, operations and maintenance of facilities; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting (Enter Resource Value being Protected).

CSU (1) Surface occupancy or use may be restricted or prohibited if paleontological sites exist unless paleontological sites are avoided or the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting (Select Lance Creek Fossil Area or enter other area name) paleontological values.

CSU Coal and Gas Conflict Special Lease Stipulation

(1). Surface use or occupancy shall not be allowed by oil and gas lessee(s), operating rights holders(s), and/or oil and gas operator(s) on this Federal oil and gas lease to conduct any oil and gas operation, including drilling for, removing, or disposing of oil and/or gas contained in the Federal coal lease (Enter the coal lease number) unless a plan for mitigation of anticipated impacts is developed between the oil and gas and the coal lessees, and the plan is approved by the Authorized Officer.;

(2) as mapped on the (Enter map name, legal description or Entire lease);

(3) For the purpose of protecting the first in time valid existing rights of the coal lessee, the Authorized Officer reserves the right to alter or modify any oil and gas operations on the lands described in this lease ensuring:

- a.) The orderly development of the coal resource by surface and/or underground mining methods;
- b.) Coal mine worker safety; and/or
- c.) Coal production rates or recovery of the coal resource.

The oil and gas lessee(s), operating rights holders(s), and/or oil and gas operator(s) of this Federal oil and gas lease shall not hold the United States as lessor, coal lessee(s), sub-lessee(s), and/or coal operator(s) liable for any damage or loss of the oil and gas resource, including the venting of coal bed methane gas, caused by coal exploration or mining operations conducted on Federal coal lease (Enter the coal lease number).

CSU (1) Surface occupancy or use within 1/4 mile or visual horizon of trail whichever is closer may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting cultural and scenic value of the (Select Oregon, Mormon, Pony Express, California, Bozeman or Overland or enter other trail name).

CSU (1) Surface occupancy or use within the Wind River Front Special Recreation Management Area will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protect watershed, cultural, and wildlife values.

CSU (1) Surface occupancy or use within the (Enter name of constraining resource) will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the (Enter map name, legal description or Entire lease); (3) protecting (Enter Resource Value being Protected).