

**U.S. Department of the Interior
Bureau of Land Management**

Environmental Assessment

DOI-BLM-WY-R010-2010-0012-EA

July 2010

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Worland Field Office
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Introduction

Identifying Information:

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920, as amended [30 U.S.C. 181 et seq.] and the Federal Land Policy and Management Act of 1976, to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

As required by 43 CFR 3120.1-2, the BLM Wyoming State Office conducts a quarterly competitive lease sale to sell available oil and gas lease parcels. A Notice of Competitive Lease Sale, which lists lease parcels to be offered at the auction, is published by the BLM State Office at least 45 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process. Surface management of non-BLM administered land overlaying federal minerals is determined by BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale the BLM State Office sends a draft parcel list to each field office where the parcels are located. Field Office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing; if appropriate stipulations have been included; if new information has become available which might change any analysis conducted during the planning process; if appropriate consultations have been conducted, and if there are special resource conditions of which potential bidders should be made aware. Each Field Office confirms this review by preparing a Documentation of NEPA Adequacy (DNA) which supports BLM's decision that there have been no changed circumstances warranting further NEPA analysis. Once the draft parcel review and DNA is completed and returned to the State Office, a list of available lease parcels and stipulations is made available to the public through a Notice of Competitive Lease Sale (NCLS).

On rare occasions, additional information obtained after the publication of the NCLS, may result in withdrawal of certain parcels prior to the day of the lease sale.

The following Environmental Assessment (EA) documents the Worland Field Office review of the parcels that were nominated. All parcels addressed in this EA are under the administration of the Worland Field Office. It serves to verify conformance with the approved land use plan, addresses new information, and provides the rationale for issuing parcels to be sold during the aforementioned lease sale.

Title, EA number, and type of project:

DOI-BLM-WY-R010-2010-0012-EA

Location of Proposed Action:

T. 45/46N R. 100W; T. 45N R. 101W; 6th PM, WY

Name and Location of Preparing Office:

Lead Office - Worland Field Office

Purpose and Need for Action:

The purpose of this document is to analyze the impacts of issuing leases for parcels nominated for the November 2010 competitive oil and gas lease sale to allow private individuals or companies to explore for and develop oil and gas resources on public lands. BLM has prepared this EA to analyze whether it remains appropriate to issue leases for these nominated parcels. The sale and issuance of oil and gas leases is needed to meet the growing energy needs of the United States public. Wyoming is a major source of oil and natural gas for heating and electrical energy production in the lower 48 states, especially for markets in the Eastern United States. Continued sale and issuance of lease parcels is necessary to maintain options for production as oil and gas companies seek new areas for production or attempt to develop previously inaccessible or uneconomical reserves.

Scoping, Public Involvement and Issues:

An interdisciplinary team comprised of Worland Field Office resource specialists has reviewed the proposed action and identified impacts and analyzed those impacts in this EA. Consultation with the Wyoming Game and Fish was also conducted; comments received have been incorporated in the analysis and mitigation.

Proposed Action and Alternatives

Description of the Proposed Action:

A total of thirteen lease parcels (4022.94 acres) were nominated for the Nov. 2010 sale. This section describes the alternatives considered for analysis.

Standard terms and conditions as well as special stipulations would apply. Lease stipulations (as required by Title 43 Code of Federal Registration 3131.3) were added to each parcel as identified by the Worland Field Office to address site specific concerns or new information not identified in the land use planning process.

Description of Alternatives Analyzed in Detail:

Alternative 1 – Full lease issuance with standard stipulations. Under Alternative 1, all nominated parcels would be recommended for sale at the Nov. 2010 lease sale, approximately 4022.94 acres, as detailed in Appendix A.

Alternative 2 – This alternative analyzes the issuance of leases with stipulations applied for special resource values not covered in standard stipulations (2240 acres). This alternative also analyzes the effects of deferring nominated parcels WY-1011–173 & WY-1011–174 (1782.94 acres).

Alternative 2 analyzes the nominated lease parcels to determine if the State Director should issue the leases as modified in light of new resource information. This would include issuing parcels with standard terms and conditions as well as special stipulations would apply. Lease stipulations (as required by Title 43 Code of Federal Registration 3131.3) were added to each parcel as identified by the Worland Field Office to address site specific concerns or new information not identified in the land use planning process.

All parcels for Alternative 2, as modified, are listed in Appendix B with the parcel number, acreage, lease number, location and stipulations.

Alternative 3 – This alternative analyzes the effect of not issuing lease parcels as nominated. Under the No Action alternative, the BLM would not issue any of the leases that have been nominated. Surface management would remain the same and ongoing oil and gas development would continue on surrounding federal, private, and state leases.

The BLM NEPA Handbook (H-1790-1) states that for Environmental Assessments (EAs) on externally initiated proposed actions, the No Action Alternative generally means that the proposed action would not take place. In the case of a lease sale, this would mean that an expression of interest to lease (parcel nomination) would be denied or rejected, and a lease would not be issued for that parcel.

It is not expected that demand for energy oil and gas will go down, and a decision to not issue these leases would not prevent future leasing in these areas consistent with land use planning decisions, and subject to appropriate stipulations, identified in the Resource Management Plan. Therefore, it is anticipated that these parcels may be nominated and leased at a future date. While future leases may contain more restrictive lease terms, it is reasonable to consider that a substantial portion of the development possible under current planning decisions will be possible under future leases.

Conformance

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this environmental assessment (EA) tiers to and incorporates by reference the information and analysis contained in the Grass Creek Resource Management Plan and Final Environmental Impact Statement.

Name of Plan: Grass Creek Management Plan Date Approved: September 1998

Remarks:

The Grass Creek RMP provides that the entire planning area (about 1,171,000 acres of BLM-administered mineral estate) is open to oil and gas leasing consideration. About 20,200 acres of BLM-administered mineral estate are open to leasing consideration with a “no surface occupancy” stipulation. The rest of the Planning area is subject to standard lease terms and conditions, and seasonal or other requirements. It is the decision of the Grass Creek Resource Management Plan that “surface disturbing and disruptive activities associated with all types of minerals exploration and development and with geophysical exploration will be subject to appropriate mitigation developed through use of the mitigation guidelines described in Appendix 3”. (Record of Decision and Approved Resource Management Plan for the Grass Creek Planning Area, pg 15.)

Affected Environment:

Land Use

The location of the lease parcels nominated are detailed in Appendix XXX; but are generally in T. 45, R. 100, and T. 45, R. 101; 6th PM, WY. The following parcels contain private lands with mineral estate managed by the Federal Government.

- WY-1011-165
- WY-1011-167
- WY-1011-168
- WY-1011-169
- WY-1011-173

Geology and Paleontological Resources

The surface formations within the lease parcels include Aycross (Ta), Teepee Trail (Tt), Willwood (Twl), and Mesa Verde (Kmv). Three of the formations (Aycross, Teepee Trail, and Willwood) have a PFYC (Potential Fossil Yield Classification) rating of 4 or high. This means the formations have a high sensitivity for paleontological resources. The Mesa Verde formation has a PFYC of 3, with a moderate sensitivity for paleontological resources. Significant fossil localities for plants, invertebrates, and vertebrates are known within these formations.

Hydrology/Water Quality (surface and ground)

The lease parcels lie within the watersheds listed in the table below.

Basin	Watershed (Level 6)	USGS HUC #
Upper Bighorn	Gooseberry Creek	100800070101
Upper Bighorn	Enos Creek	100800070704
Upper Bighorn	Prospect Creek	100800070605
Upper Bighorn	Upper Grass Creek	100800070606

These watersheds are located along the foothills and upper elevations of the Bighorn Basin and provide for surface water flows into the basin. These areas also are regional ground water recharge areas in the basin where evaporation is equal to or greater than effective precipitation.

There are several spring sources and other perennial and intermittent stream segments that occur within the lease parcel areas. There is a total of 2.01 stream miles of perennial and intermittent stream segments that are located within the lease parcels flow during the snow melt during spring runoff from snow pack and flow from base flow and ground water recharge during the late summer, and fall. There are 13 inventoried natural spring sources in the lease parcels that originate from Tertiary Volcanic deposits along the foothills of the Absoroka range. The oil and gas drilling withdraws water from deeper geologic formations that are located below the surface and are not connected to the surficial flows and other spring flows. The potential impacts to surface and ground water resources would be mitigated as state and federal drilling regulations are followed for proper casing, cementing, and grouting to prevent contamination of waters from multiple aquifers.

Air Quality & Climate Change

The Clean Air Act Amendment of 1970 established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. The environmental protection agency (EPA) continues to define and set NAAQS. Ambient air is that which is accessible to the public. National air quality health standards have been set for pollutants called “criteria pollutants.” These include ozone, particulates, sulfur dioxide, nitrogen dioxide, carbon monoxide and lead. The Wyoming Department of Environmental Quality has set standards for these criteria pollutants also, called Wyoming Ambient Air Quality Standards (WAAQS). The State of Wyoming has determined through available monitoring that the area is in compliance with WAAQS and NAAQS.

The climate in the Resource Area is designated as a combination of Intermountain Semi-desert and Southern Rocky Mountain Steppe. The Bighorn Basin is bounded on the northeast by the Pryor Mountains, on the east by the Big Horn Mountains, on the south by Owl Creek and Bridger and Washakie Ranges, on the west by the Absaroka Mountains, and open to the north into Montana. Summers are generally hot and short, and winters long and cold. Precipitation is generally low, though greater at higher elevations, and is generally evenly distributed across the year, with the exception of the drier summer months. Wind speeds are variable and generally strong.

Climate change refers to any significant change in measures of climate (e.g., temperature or precipitation) lasting for an extended period of time (decades or longer). Climate change may result from natural processes, such as changes in the sun’s intensity; natural processes within the climate system (such as changes in ocean circulation); human activities that change the atmosphere’s composition (such as burning fossil fuels) and the land surface (such as urbanization) (IPCC 2007).

Greenhouse gases that are included in the US Greenhouse Gas Inventory are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). CO₂ and methane (CH₄) are typically emitted from combustion activities or are directly emitted into the atmosphere. On-going scientific research has identified the potential impacts of greenhouse gas emissions (including CO₂; CH₄; nitrous oxide (N₂O), water vapor; and several trace gasses) on global climate. Through complex interactions on at regional and global scales, these greenhouse gas emissions cause a net warming effect of the atmosphere (which makes surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although greenhouse gas levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO₂ concentrations to increase dramatically, and are likely to contribute to overall climatic changes, typically referred to as global warming. Increasing CO₂ concentrations also lead to preferential fertilization and growth of specific plant species.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Data indicates that northern latitudes (above 24° N) have exhibited temperature increases of nearly 1.2°C (2.1°F) since 1900, with nearly a 1.0°C (1.8°F) increase since 1970 alone. It also shows temperature and precipitation trends for the conterminous United States. For both parameters we see varying rates of change, but overall increases in both temperature and precipitation. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal

variability and change of climatic conditions, but increasing concentrations of greenhouse gases are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change indicated that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Computer model predictions forecasts indicate that increases in temperature will not be evenly or equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

Currently, the WDEQ-AQD does not have regulations regarding greenhouse gas emissions, although these emissions are regulated indirectly by various other regulations.

Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The primary greenhouse gases that enter the atmosphere as a result of anthropogenic activities include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These synthetic gases are powerful GHGs that are emitted from a variety of industrial processes.

Ongoing scientific research has identified the potential impacts of anthropogenic greenhouse gas (GHG) emissions and changes in biological sequestration due to land management activities on global climate. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused CO₂ concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change (IPCC) recently concluded that “warming of the climate system is unequivocal” and “most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.”

Several activities contribute to the phenomena of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years. In contrast, black carbon is a relatively short-lived pollutant, as it remains in the atmosphere for only about a week. It is estimated that black carbon is the second greatest contributor to global warming behind CO₂ (Ramanathan and Carmichael, 2008).

The lack of scientific tools designed to predict climate change at regional or local scales limits the ability to quantify potential future impacts. However, potential impacts to air quality due to climate change are likely to be varied. Several activities occur within the planning area that may generate greenhouse gas emissions: oil, gas, and coal development, large fires, livestock grazing, and recreation using combustion engines which can potentially generate CO₂ and methane.

Some activities within the Planning Area generate greenhouse gas (GHG) emissions. Oil and gas development activities can generate carbon dioxide (CO₂) and methane (CH₄). CO₂ emissions result from the use of combustion engines, while methane can be released during processing. Wildland fires also are a source of other GHG emissions, while livestock grazing is a source of methane. Other activities in the Resource Area with the potential to contribute to climate change include soil erosion from disturbed areas and fugitive dust from roads, which have the potential to darken snow-covered surfaces and cause faster snow melt. A description of the potential greenhouse gas emissions associated with the proposed leasing activities is included in Section 4.

There are several National Parks, National Forests, recreation areas, and wilderness areas in or adjacent to the Big Horn Basin. National Parks, Monuments and some state designated Wilderness Areas are designated as Class I. The Clean Air Act “declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas . . . from manmade air pollution.” 42 U.S.C. § 7491(a)(1).25. Under the BLM Manual Section 8560.36, BLM lands, including wilderness areas not designated as Class I, are managed as Class II, which provides that moderate deterioration of air quality associated with industrial and population growth may occur.

Soils

The soils on the proposed lease parcels are as varied as the landscapes on which they occur. The table below gives a brief summary of the soils and their limitations.

<i>Soil Map Unit Name and Symbol</i>	<i>Soil Depth (inches)</i>	<i>Ecological Sites</i>	<i>Slope Range</i>	<i>Limitations</i>
720 Blazon — Rock Outcrop Complex	0–40	Shallow Loamy 10”–14” pz. Rock Outcrop	3–60	Steep slopes, shallow soils,
722 Blazon Loam	20–40	Shallow Loamy 10”–14” pz..	3–45	Steep slopes
723 Blazon — Delphil Loams	20–40	Shallow Loamy 10”–14” pz. Loamy 10”–14” pz..	3–30	Steep slopes
724 Blazon — Brownsto Complex	20–40	Shallow Loamy 10”–14” pz. Loamy 10”–14” pz..	3–45	Steep slopes, shallow soils
725 Blazon — Diamondville Complex	20–40	Shallow Loamy 10”–14” pz. Loamy 10”–14” pz.	3–30	Steep slopes
732 Thermopolis — Rock Outcrop Complex	0–40	Shallow Loamy 10”–14” pz. Rock Outcrop	3–45	Steep slopes, shallow soils
735 Patent — Forelle Association	40–60	Loamy 10”–14” pz.	3–15	Few
736 Forelle — Pinelli Association	40–60	Loamy 10”–14” pz.	3–15	Few

804 Rock Outcrop — Merino Complex	0–40	Shallow Loamy 15”–19” pz.	6–60	Steep slopes, shallow soils
808 Nielsen — Abes — Rock Outcrop	0–40	Shallow Loamy 15”–19” pz Shallow Clayey 15”19” pz.	6–60	Steep slopes, shallow soils
814 Mayoworth — Burnette — Abes	20–60	Clayey 15’-19” pz. Loamy 15”–19” pz Shallow Clayey 15”19” pz.	3–45	Steep slopes, shallow soils
816 Nielsen — Clayburn Complex	20–60	Shallow Loamy 15”–19” pz. Loamy 15”-19” pz.	3–45	Steep slopes, shallow soils
818 Nielsen — Gilispie Complex	20–40	Shallow Loamy 15”–19” pz. Woodland	3–45	Steep slopes, shallow soils
850 Millerlake — Adel Loams	40–60	Loamy 15”-19” pz.	3–30	Steep slopes, shallow soils
854 Burnette — Clayburn Loams	20–40	Loamy 15”–19” pz.	3–30	Steep slopes, shallow soils
876 — Wetterhorn — Wetterhorn Variant	20–4–	Woodland	6–60	Steep slopes, shallow soils

Vegetation

Native Vegetation

The parcels are mapped in various plant communities.

Plant Communities	Parcel Number
Juniper Woodland	170
Limber Pine	162, 167, 167, 169, 170
Wyoming Big Sage	170
Mt. Big Sage	161, 162, 163, 164, 165, 166, 167, 168, 169, 171
Douglas Fir	173, 174

Invasive Species

Current known noxious weed infestations in the lease area include: Canada thistle in parcel 173; spotted knapweed and Canada thistle in parcel 170; and spotted knapweed in parcel 169.

Threatened, Endangered, BLM Sensitive Species

Rocky Mountain Twinpod (*Physaria saximontana* var *saximontana*) is a BLM sensitive plant that occurs in the project area of parcels 161 and 162 . It occurs on sparsely vegetated slopes on sandy, gravelly soils, or talus of limestone, red sandstone, or clay at 5200 — 8300 feet.

Range

The parcels proposed in this lease sale cover portions of several Worland Field Office grazing allotments listed on the parcel sheet.

Wildlife—including Threatened, Endangered, BLM Sensitive Species

The proposed lease parcels are all within the Absaroka Mountain foothills, and are characterized by draws, ridges and ridge complexes, with the predominant vegetation being a mix of mountain sagebrush/grasslands, scattered juniper and limber pine woodlands, with aspen and mixed conifer stands, primarily on north aspects. All the proposed parcels involve some portion of big game winter range. All of the parcels are within, or contain some portion of crucial elk winter range, parcels 161, 162, 165, 167, 168, 169, and 179 are all within, or contain some portion of crucial Mule deer winter range, and parcels 173 and 174 are within, or contain some portion of crucial moose winter range. All of these big game species could be expected at any time of the year, with larger concentrations during winter. These proposed parcels are also within a Hunter Management Area and a Cooperative Road Management area, jointly managed by the BLM, WGFD, LU Ranch, and State Land Board, that has become a very popular big game hunting destination. The area also provides habitat for black bear, mountain lion, bobcat and coyote.

Threatened or endangered species that could potentially occur within the proposed parcels are the Grey Wolf, Grizzly bear, and Canada lynx, those on the Wyoming BLM's Sensitive Species list is the Northern Goshawk. Occurrence of both the Grizzly bear and Grey wolf could be anticipated within any of the proposed parcels. Grizzly bear occurrence has been observed in and around all of the proposed parcels, particularly in the spring and fall. There are no known den sites within the vicinity. Usually by mid June most Grizzly bears have moved up onto the neighboring Shoshone National Forest for the summer, following green-up as it progresses to higher elevations. Grizzly occurrence in the fall is associated with the onset of October elk hunting seasons and major snowfall and elk migration events, which typically occur from October through November. Occasional wolf occurrence is possible in the area also. Wolf occurrence would most likely occur during winter and early spring when larger concentrations of elk are present. Those portions of lease parcels #173 and #174 that are in the Gooseberry Creek drainage are part of a much larger Lynx Analysis Unit that does provide suitable Canada lynx habitat, even though no occurrence has been documented. The mixed conifer stands within or near most of these parcels, provide nesting habitat for Northern Goshawk, and the cottonwood trees, rock and cliff faces provides nesting habitat for other raptors like the red-tailed hawk, golden eagle and common raven. There are 2 known raptor nests within 1 mile of lease of parcels 165, 167, 169, 173, and 174.

Recreation and Visual Resources

The project location is within the Absaroka Foothills Special Recreation Management Area (SRMA), which is managed for semi-primitive recreational activities. The SRMA was established through the Grass Creek RMP (1998) in response to customer demand, identified benefits, experiences, settings, and activities. Management for the SRMA is to maintain the semi-primitiveness of the area, and to manage for non-motorized activities. The proposed project is within the LU Ranch Cooperative Travel Management Area, which includes the LU Ranch, Wyoming Game and Fish, Wyoming State Land Board, and the BLM. The cooperative effort has enabled the LU Ranch area, State Land, and BLM-administered public land to be accessible during the hunting season via non-motorized means. This management has enhanced the hunting experience of the area as well as improved the wildlife and associated wildlife habitat. Management actions so as to meet the objectives include closing roads in the LU Ranch,

Wyoming State Land, and BLM-administered public lands. OHV use in this area is limited to designated roads and trails, which is posted. This area is very popular during the big game hunting season, but is also popular during the summer months as visitor's access through the area in route to the Shoshone National Forest and the Washakie Wilderness via Grass Creek Road. As mandated by FLPMA, Section 201, the BLM inventoried public lands surrounding the project area, and found that this area contains no wilderness characteristics.

The project area is located on BLM-administered public lands managed as VRM Class III. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Cultural and Historical Resources

The lease parcels contain three known cultural sites. Two of the sites, including one historic trail, are eligible for the National Register of Historic Places. Cultural resource studies indicate that the general area has been occupied for at least 12,000 years and additional cultural resource sites should be anticipated within the parcels. In accordance with the Wyoming State Protocol Appendix B.2, issuance of leases is exempt from class III inventory. Prior to conducting surface disturbance on these parcels a Class III cultural resource inventory would be completed.

Socioeconomics

Local communities depend heavily upon oil, gas, and mining activities. Agriculture and tourism also support local economies. The State of Wyoming receives a portion of the lease amount as well as a portion of the royalties should a lease begin production. A portion of the State of Wyoming's portion is returned to the county where the lease is located.

Fire & Fuels Management

All of the parcels addressed in this EA lie within the Absaroka Front Fire Management Unit. The Absaroka Front FMU has a general topography of east slopes from the Absaroka Range with foothills and long drainages. Its elevation ranges from above 11,000 to 5,000 ft. The vegetation can be divided into six subtypes as follows: 4% desert salt shrub, 19% foothill Mountain Sagebrush and shrub, 14% juniper and limber pine, 4% mixed conifer, including lodgepole pine and aspen, 53% sagebrush shrub critical habitat, and 6% of acres that include barren areas, alpine tundra, greasewood flats, and crop land. Fire behavior in this FMU can range widely depending on microclimate, fuel type, and land use. The higher elevations normally have decreased fire spread because of greater relative humidity, especially if lightning strikes are accompanied by rain. Land use, i.e., livestock grazing vs. recreation, influences fire spread in lower elevations and can range from fast moving grass fires to slower, more intense shrub and juniper fires.

With the exception of that portion of 173 and 174 that lies in the Enos Creek drainage, the proposed parcels have been impacted by lightning caused wildland fires, prescribed fires, or mechanical vegetation manipulation projects. These events have reduced hazardous fuels, restored fire adapted ecosystems, promoted community assistance and accomplished resource management objectives. As a result, the threat of a catastrophic wildfire in this area has been reduced but not eliminated. Prescribed burning and mechanical projects are still being implemented and planned.

Environmental Effects:

Land Use

Alternative 1

Leasing would not have a direct impact to land use as proposed. Public lands are currently managed with multiple-use objectives focussing on wildlife and recreational uses. There are approximately 845 acres on split estate lands. Should the leases be issued and developed, those parcels containing private lands and split estate minerals would be subject to surface agreements and/or additional bonding requirements to compensate the private land owners for use of their property.

Alternative 2

A total of 1782.94 acres would be deferred for other resource values until resource management can be developed. Parcel WY-1011-173 contain approximately 40 acres private land. All other land uses would continue under current management goals and objectives. No additional effects beyond those addressed in Alternative 1.

Alternative 3

Under the No Action Alternative, the proposed Action would not occur. No resulting effects would be expected to occur beyond the current situation.

Geology and Paleontological Resources

Alternative 1

The surface formations within the lease parcels have produced paleontological localities. Sale of the lease will have no effect on paleontological resources. Development of the leases without additional mitigation could have an adverse effect on these resources.

Alternative 2

The surface formations within the lease parcels have produced paleontological localities. Sale of the lease will have no effect on paleontological resources. However, construction as a result of the lease sale could damage or destroy surface and buried paleontological resources. Mitigation measures would be developed at the site specific APD or right-of-way application stage. Although the amount and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development, an inventory may be necessary prior to construction.

Alternative 3

Under the No Action Alternative, the proposed Action would not occur. No resulting effects on paleontological localities would be expected to occur beyond the current situation.

Hydrology & Water Quality (surface and ground)

Alternative 1

While the act of leasing a parcel would produce no impacts, subsequent development of the lease would result in long term and short term changes to the hydrologic regime. Because of reduced water infiltration rates on well pads and roads, surface flows would move more quickly to stream channels, causing peak flow to occur earlier and to be higher than normal. Such an increase

runoff volumes and magnitude of the peak flow has the potential cause bank erosion, channel widening, downward incision, and disconnection from the floodplain. These potential effects would be dependent on the density of pad and road development within a watershed. Low density development may only affect the smaller tributary streams but not the larger ones, whereas more concentrated development within a watershed or catchment would tend to create potential effects further downstream to larger channels. Increased runoff volumes of water to streams and washes may actually increase groundwater recharge volumes. Long-term direct and indirect impacts to the watershed and hydrology would continue for the life of wells and would decrease once all well pads and road surfacing material has been removed and reclamation of well pads, access roads, pipelines, and powerlines has taken place. Short-term direct and indirect impacts to the watershed and hydrology from access roads that are not surfaced with material would occur and would likely decrease in time due to reclamation efforts. The actual impacts would be analyzed and mitigated at the APD level on a site specific basis.

Water Quality (surface and ground)

While the act of leasing the parcels would produce no impacts, subsequent development of the lease would lead to surface disturbance from the construction of well pads, access roads, pipelines, and powerlines and could result in degradation of surface water quality and groundwater quality from non-point source pollution, especially from potentially increased soil erosion and sedimentation. Potential direct impacts would chiefly be brought about by soil disturbance due to construction of well pads, access roads, pipelines, and power lines, and would include increased surface water runoff, erosion, off-site sedimentation and dissolved constituents (salt loading) to downstream waters. Such hydrologic effects may cause changes in downstream channel morphology such as bed and bank erosion or accretion. The magnitude of these potential impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activity would occur, and the timely implementation and success or failure of mitigation measures. Direct impacts would likely be greatest shortly after the start of construction activities and would decrease in time due to proper implementation of Best Management Practices (BMPs) that would include proper design of facilities along with effective temporary stabilization measures that would promote permanent natural vegetative stabilization and reclamation of disturbed areas. Construction activities would occur over a relatively short period, and therefore the majority of the disturbance would be evident but short lived. Impacts to surface water quality would be managed (minimized) through the implementation, monitoring, and necessary adjustment of BMPs prescribed. However, short-term and minor impacts may occur during storm flow events. Petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and ground water quality. Authorization of development projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

Alternative 2

In addition to the standard general watershed and riparian/floodplain stipulations an orderly system of road locations and road construction requirements (including regular maintenance) would alleviate potential impacts to the environment from the development of access roads. General conditions of approval at the APD stage will specify Best Management Practices and include reclamation of plant communities and use of erosion control measures, water control measures, and sedimentation control measures, such as road and pad location and design, culverts,

and silt traps to reduce erosion and sediment flow. Roads that are determined to be year-round use service roads will have short and long term impacts to the watershed and hydrology. Hardening of these roads and use of hardened low level crossings is highly recommended. Upon abandonment of the wells and/or when access roads are no longer in service, the Authorized Officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached Conditions of Approval

Water Quality (surface and ground)

Potential effects would depend on site-specific location of future development and cannot be predicted or quantified at the leasing stage. General conditions of approval at the APD stage will specify Best Management Practices that will include reclamation of plant communities and water control measures to prevent and limit erosion and sedimentation, such as road and pad location and design, culverts, and silt traps. Existing regulations require operators ensure an adequate casing program is designed to protect ground water from contamination. The use of lined reserve pits would reduce or eliminate seepage of drilling fluid into the soil and prevent it from eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soils onsite, or offsite, and could potentially impact surface and groundwater resources in the long term. The casing and cementing requirements imposed on proposed wells would reduce or eliminate the potential for groundwater contamination from drilling mud and other surface sources.

Alternative 3

The removal of the lease parcels would have no direct effect on the watershed hydrology or other water resources. The potential for changes in watershed conditions from development of lease parcels in the future would be withdrawn.

Air Quality & Climate Change

Alternative 1

Issuing leases for the subject tracts would have no direct impacts to air quality. Any potential effects to air quality would occur if and when the leases were developed. Over the last 10 years, the leasing of Federal oil and gas mineral estate in the Worland Field Office has resulted in an average of 30 wells drilled on federal leases annually. These wells would contribute a small percentage of the total emissions (including GHG's) from oil and gas activities in Wyoming.

Potential impacts of development could include increased air borne soil particles associated with the construction of new well pads, pipelines, or roads, exhaust emissions from drilling equipment, compressors, vehicles, and dehydration and separation facilities, as well as potential releases of GHG and volatile organic compounds during drilling or production activities. The amount of increased emissions cannot be quantified at this time since it is unknown how many wells might be drilled, the types of equipment needed if a well were to be completed successfully (e.g. compressor, separator, dehydrator), or what technologies may be employed by a given company for drilling any new wells. The degree of impact will also vary according to the characteristics of the geologic formations from which production occurs. Emissions of all regulated pollutants (including GHGs) and their impacts will be quantified and evaluated at the time that a specific development project is proposed.

In 2009, the BLM Wyoming State Office Reservoir Management Group produced a draft Reasonably Foreseeable Development Scenario for Oil and Gas (RFD) document for the Worland

Field Office Planning Area RMP revision. This document demonstrates that approximately 1715 conventional wells and 150 Coalbed Natural Gas wells could be drilled between 2008 and 2027 on Federal minerals. The absolute density of drilling depends upon the technology available (vertical, directional, or horizontal) and the geology of the hydrocarbon-bearing zone. As a result, it is unknown the specific numbers of wells that could potentially be drilled under a full field development scenario as a result of issuing the leases. However, the RFD takes these assumptions into account, and on a Field Office wide basis, is still valid. Current APD permitting trends within the field office confirm that these assumptions are still accurate.

Alternative 1 proposes the most amount of land available for leasing and subsequent exploration and development and would therefore have the greatest impact to air resources among the three alternatives.

Alternative 2

Impacts associated with Alternative 2 would be similar to Alternative 1. However, constraints on disturbance size and distribution may reduce PM10 particulate matter. Increased timing restrictions would limit the number of days available for well pad construction and development compared to Alternative 1 and may result in concentration of emissions associated with these activities. Concentration of ozone precursors namely, VOCs, CO, and NOx, may increase ozone formation more than Alternative 1.

The issuance of leases in itself would not result in any direct greenhouse gas emissions. However, in regard to future development, the assessment of GHG emissions and climate change is in its formative phase. While it is not possible to accurately quantify potential GHG emissions in the affected areas as a result of making the proposed tracts available for leasing, some general assumptions however can be made: issuing the proposed tracts may contribute to drilling new wells.

The Center for Climate Strategies (CCS) prepared the Wyoming Greenhouse Gas Inventory and Reference Case Projection 1990-2020 (Inventory) for the Wyoming Department of Environmental Quality (WYDEQ) through an effort of the Western Regional Air Partnership (WRAP). This inventory report presents a preliminary draft greenhouse gas (GHG) emissions inventory and forecast from 1990 to 2020 for Wyoming. This report provides an initial comprehensive understanding of Wyoming's current and possible future GHG emissions. The information presented provides the State with a starting point for revising the initial estimates as improvements to data sources and assumptions are identified.

The inventory report discloses that activities in Wyoming accounted for approximately 56 million metric tons (MMt) of gross carbon dioxide equivalent (CO₂e) emissions in 2005, an amount equal to 0.8% of total US gross GHG emissions. These emission estimates focus on activities in Wyoming and are consumption-based; they exclude emissions associated with electricity that is exported from the State. Wyoming's gross GHG emissions increased 25% from 1990 to 2005, while national emissions rose by only 16% from 1990 to 2004. Annual sequestration (removal) of GHG emissions due to forestry and other land-uses in Wyoming are estimated at 36 MMtCO₂e in 2005. Wyoming's per capita emission rate is more than four times greater than the national average of 25 MtCO₂e/yr. This large difference between national and State per capita emissions occurs in most of the sectors – Wyoming's emission per capita significantly exceed national emissions per capita for the following sectors: electricity, industrial, fossil fuel production, transportation, industrial process and agriculture. The reasons for the higher per capita intensity in Wyoming are varied but include the State's strong fossil fuel production industry and other

industries with high fossil fuel consumption intensity, large agriculture industry, large distances, and low population base. Between 1990 and 2005, per capita emissions in Wyoming have increased, mostly due to increased activity in the fossil fuel industry, while national per capita emissions have changed relatively little.

Wyoming's gross GHG emissions are expected to continue to grow to 69 MMtCO₂e by 2020, 56% above 1990 levels. As shown in Figure ES-3 of the Inventory, demand for electricity is projected to be the largest contributor to future emissions growth, followed by emissions associated with transportation. Although GHG emissions from fossil fuel production had the greatest increase by sector in the period 1990 to 2005, the growth from this sector is projected to decline due to assumption of decreased carbon dioxide emissions from venting at processing plants.

There are approximately 2688 existing Federal oil and gas wells in the Worland Field Office, which account for approximately 7.6 percent of the total Federal wells in Wyoming. Therefore, GHG emissions from all wells within the field office amount to approximately 1.4896 metric tons annually (mt) ($19.6 \text{ mt} \times 0.076 = 1.4896 \text{ mt}$).

Subsequent development of any leases issued, would contribute a small incremental increase in overall hydrocarbon emissions, including GHGs. When compared to total national or global emissions, the amount released as a result of potential production from the proposed lease tracts would not have a measurable effect.

Based on this emission factor, each potential well that may be drilled on these parcels, if issued, could emit approximately 0.00059 mt of CO₂e. It is unknown what the drilling density may be for these parcels, if they were to be developed; therefore, it is impossible to predict what level of emissions could occur from development at this stage under the proposed action.

The BLM holds regulatory jurisdiction over portions of natural gas and petroleum systems, identified in the EPA Inventory of US Greenhouse Gas Emissions and Sinks document. Exercise of this regulatory jurisdiction has led to development of "Best Management Practices (BMPs)" designed to reduce emissions from field production and operations. Analysis and approval of future development on the lease parcels would include applicable BMPs as conditions of approval (COAs) in order to reduce or mitigate GHG emissions. Additional measures developed at the project development stage would be incorporated as COAs in the approved APD or with a programmatic EIS, which are binding on the operator.

Such mitigation measures may include, but are not limited to: Flare hydrocarbon and gases at high temperatures in order to reduce emissions of incomplete combustion through the use of multi-chamber combustors; "Green" (flareless) completions, Water dirt roads during periods of high use in order to reduce fugitive dust emissions; Require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; Installation of liquids gathering facilities or central production facilities to reduce the total number of sources and minimize truck traffic, Use of natural gas fired or electric drill rig engines, The use of selective catalytic reducers on diesel-fired drilling engines; and, Re-vegetate areas of the pad not required for production facilities to reduce the amount of dust from the pads.

The EPA Inventory data show that adoption by industry of the Best Management Practices proposed by the EPA's Natural Gas Energy Star program has reduced emissions from oil and gas exploration and development (Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006). The Worland Field Office will work with industry to facilitate the use of the relevant

BMPs for operations proposed on federal mineral leases where such mitigation is consistent with agency policy.

Alternative 3

Due to demand for oil and gas, it is expected that these parcels may be re-nominated in the future, consistent with appropriate land use planning decisions, and would be offered for sale with additional stipulations. There is no way to accurately predict what level of restrictions future leasing may require, but it can be assumed that a substantial portion of the development that would occur under Alternative 1 would still be permitted under future leases. Nominations of parcels for lease under future land use plans and decisions would be screened for consistency with the land use plan in effect at the time, and the appropriate environmental analysis would be conducted to determine associated air quality impacts. Impacts to air quality from leases issued from any future sales would be analyzed in the appropriate environmental documents for those sales. Analysis of air quality impacts is also required at the time an application for a permit to drill is submitted.

Soils

Alternative 1

The act of leasing these parcels would have no impact to the soil resource. The impacts to the soil resource associated with development and production cannot be predicted until the site-specific APD stage of development. Soils vary in their suitability for well pad and road development, and following disturbance, in their reclamation potential. Subsequent development of the lease would physically disturb the soil. The vegetation would be removed and the soil would be exposed to the erosional forces of raindrop impact and overland flow. The direct impacts resulting from the construction of well pads, access roads, and reserve pits include removal of vegetation, exposure of the soil to the erosive forces of wind and water, mixing of horizons, compaction, loss of topsoil productivity, and susceptibility to wind and water erosion. These impacts could result in increased indirect impacts such as runoff, erosion, and off-site sedimentation. Activities that could cause these types of indirect impacts include construction and operation of well sites, access roads, gas pipelines, and facilities. Contamination of soil from drilling and production wastes mixed into soil or spilled on the soil surfaces could cause a long-term reduction in site productivity. Some of these direct impacts can be reduced or avoided through proper design, construction and maintenance, and implementation of best management practices. As described in Conditions of Approval at the APD stage, operators would be required to stockpile topsoil reclamation of disturbed areas. Upon abandonment of wells and/or when access roads are no longer in service, the Authorized Officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in Conditions of Approval at the APD stage. For the purpose of protecting the soil resource surface disturbance will not be allowed on slopes over 25 percent.

Alternative 2

The act of leasing these parcels would have no impact to the soil resource. There would be no impacts to lease parcels 173 and 174 since they would be deferred from leasing. There would be no additional lease stipulations added to protect the soil resource under this alternative, therefore, the impacts would be similar to those discussed under Alternative 1.

Alternative 3

Since no parcels would be leased under this alternative there would be no impacts to the soil resource.

Vegetation including Threatened, Endangered, and BLM Sensitive Species

Alternative 1

Native Vegetation – There are no direct impacts from leasing parcels. Indirect impacts would be associated with any future development occurring should the proposed leases be issued. Leasing Terms and Conditions; in addition to laws, regulations, and policy, require that reclamation be completed in a timely manner that best represents pre-disturbance conditions. Best Management Practices would be implemented upon site-specific development to ensure proper reclamation is occurring that supports the native plant communities.

Invasive Species – Any surface disturbance can increase the probability of establishment of new populations of invasive non-native species, or increase of an existing weed population. At the APD stage, BLM requirements for use of weed control strategies would minimize the potential for spread of these species.

T&E Plants – In order to protect the Rocky Mountain Twinpod, the T&E stipulation would be applied to the following parcels.

- WY-1011–161
- WY-1011–162

Alternative 2

Native Vegetation – no additional effects beyond discussed in Alternative 1.

Invasive Species – If parcels 173 and 174 are deferred from leasing, there would be no change from current existing probability for new invasive/noxious weed infestations to occur, or for increase of existing populations on those parcels. Additional stipulations for special resource values would likely limit surface disturbance in some areas and therefore no change from current existing probability for new invasive/noxious weed infestations to occur, or for increase of existing populations in those areas.

Alternative 3

No change from current existing probability for new invasive/noxious weed infestations to occur, or for increase of existing populations.

Range

Alternative 1

At the lease stage there are no impacts to livestock grazing.

Alternative 2

Same as Alternative 1

Alternative 3

Same as Alternative 1

Wildlife including Threatened, Endangered, and BLM Sensitive Species

Alternative 1

Should the parcels be leased, post-lease development (pad/road/pipeline construction, and well drilling/completion/production operations) would likely cause temporary disruption of wildlife in the area. Post-lease actions (construction and drilling) during raptor nesting period within 1/5mile of raptor nests (if raptors nest area actually active) may cause unnecessary impacts to nesting birds, such as egg or hatchling abandonment. Operations during the breeding season could result in reduced breeding success. Construction, drilling, and/or completion operations on the parcels during the crucial big game wintering period could cause unnecessary impacts to wintering mule deer, elk and moose, such as displacing animals to less suitable winter habitat and conceivably the displacement could result in increased stress and predation levels and decreased pregnancy rates and therefore population levels.

Should the parcels be leased Grizzly bear displacement, and/or grizzly bear/human interactions could be anticipated. To minimize human/Grizzly interactions and potential grizzly bear displacement, a CSU stipulation is recommended from Mar 15 - June 15 and Oct 1- Nov 15, where all project related activities will not be allowed. And in addition to the seasonal stipulations above, the following stipulations are also recommended for all activities dealing with the proposed project to minimize human/Grizzly interactions, during the remaining summer and early fall periods: 1. All human and prepared livestock and pet food, beverages, garbage, cooking grease, and other odorous substances must be stored, handled and disposed of in such a manner as to make it totally unavailable to bears at night and during the day when unattended. Unavailable means stored in a closed vehicle, stored in a bear-resistant container, constructed of solid non-pliable-material, or suspended at least ten feet clear off the ground at all points and four feet horizontally from any supporting tree or pole. 2. All field going personnel should be provided and carry bear pepper spray, particularly when working alone.

Because most wolf occurrence and concerns would be during the winter and early spring, during the seasonal restriction period covering big game species, no additional stipulations are recommended. And therefore the leasing of these parcels should not displace wolves or their prey, and wolf populations or their habitats would not be jeopardized by this proposed project.

Construction activities within mixed conifer stands could remove habitat suitable of providing lynx prey-base (i.e., snowshoe hare/ red squirrels, blue & ruffed grouse. The mixed conifer stands of concern are within parcels 173 and 174 are several hundred acres in size and could also provide dining habitat.

In the event lease development were to occur, activity and noise associated with drilling or well completion operations may cause lynx, wolves, and grizzly bear to avoid the area until such operations subside. USFWS consultation would be conducted prior to authorizing post-lease operations within Canada lynx, Grizzly bear, or grey wolf habitat.

Well-pad, road, and pipeline development into areas currently void of surface disturbing or disruptive activities would result in habitat fragmentation, which, depending on the intensity of the development, vegetative cover and terrain, could affect the habitat viability for all species mentioned above.

Unless otherwise stated above, as prescribed by the Grass Creek RMP, wildlife impacts would be mitigated through seasonal restrictions. See Appendix XXX for the specific wildlife stipulations applied to each parcel.

Alternative 2

Should parcels 173 and 174 be deferred from leasing and the remaining parcels 161 through 171 be leased, post-lease development (pad/road/pipeline construction, and well drilling/completion/production operations) would likely cause temporary disruption of wildlife in the area. Post-lease actions (construction and drilling) during raptor nesting period within 1/5mile of raptor nests (if raptors nest area actually active) may cause unnecessary impacts to nesting birds, such as egg or hatchling abandonment. Operations during the breeding season could result in reduced breeding success. Construction, drilling, and/or completion of operations on the parcels during the crucial big game wintering period could cause unnecessary impacts to wintering mule deer and elk, such as displacing animals to less suitable winter habitat and conceivably the displacement could result in increased stress and predation levels and decreased pregnancy rates and therefore population levels.

Should the remaining parcels 161 through 171 be leased Grizzly bear displacement, and/or grizzly bear/human interactions could be anticipated. To minimize human/Grizzly interactions and potential grizzly bear displacement, a CSU stipulation is recommended from Mar 15 - June 15 and Oct 1- Nov 15, where all project related activities will not be allowed. And in addition to the seasonal stipulations above, the following stipulations are also recommended for all activities dealing with the proposed project to minimize human/Grizzly interactions, during the remaining summer and early fall periods: 1. All human and prepared livestock and pet food, beverages, garbage, cooking grease, and other odorous substances must be stored, handled and disposed of in such a manner as to make it totally unavailable to bears at night and during the day when unattended. Unavailable means stored in a closed vehicle, stored in a bear-resistant container, constructed of solid non-pliable-material, or suspended at least ten feet clear off the ground at all points and four feet horizontally from any supporting tree or pole. 2. All field going personnel should be provided and carry bear pepper spray, particularly when working alone.

Because most wolf occurrence and concerns would be during the winter and early spring, during the seasonal restriction period covering big game species, no additional stipulations are recommended. And therefore the leasing of these parcels should not displace wolves or their prey, and wolf populations or their habitats would not be jeopardized by this proposed project.

In the event post-lease development were to occur, activity and noise associated with drilling or well completion operations may cause wolves and/or grizzly bear to avoid the area until such operations subside. USFWS consultation would be conducted prior to authorizing post-lease operations within grizzly bear or grey wolf habitat.

Well-pad, road, and pipeline development into areas currently void of surface disturbing or disruptive activities would result in habitat fragmentation, which, depending on the intensity of the development, vegetative cover and terrain, could affect the habitat viability for all species mentioned above.

Unless otherwise stated above, as prescribed by the Grass Creek RMP, wildlife impacts would be mitigated through seasonal restrictions. See Appendix B for the specific wildlife stipulations applied to each parcel.

Alternative 3

Under this alternative none of the parcels would be leased. There would be no subsequent surface disturbing or disruptive activities to the wildlife or their habitats caused by the post-lease development activities, and therefore no environmental consequences can be identified, analyzed or mitigated.

Recreation and Visual Resources

Alternative 1

The act of leasing these parcels would not have a direct impact to recreation or visual resources. Should the leases be sold with the standard stipulations, and the leases developed; recreational opportunities would be impacted. The indirect impact of the proposed action will alter the immediate surrounding environment from a semi-primitive setting to a more middle country or industrial influenced setting.

There will be no impacts to wilderness characteristics during the leasing, but developing the lease will impact wilderness characteristics such as naturalness and opportunities of outstanding solitude. But, the amount of these wilderness characteristics inventoried in this area is low, so impacts to wilderness characteristics will be minimal.

The leases are within VRM Class III areas. The VRM Class III objective is to partially retain existing landscape character. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate a casual observer's view. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. Best Management Practices would be developed at the site-specific project level to ensure the goals and objectives are met for this classification.

Alternative 2

For those remaining proposed parcels 161 through 171 proposed to be leased, the surface disturbing and disruptive activities would impact the big game hunting public, much like they will impact big game. Hunters choosing to hunt in and around post-lease development activities will likely see the need for displacing themselves in pursuit of big game. Because of this they will be limited to those areas without post-lease development activities. For this reason, and to mitigate potential impacts to the hunting public in a popular hunting area, we recommend that all post-lease development activities be prohibited during the hunting season which begins on Oct 1 through Nov 20.

In accordance with the Grass Creek ROD, Appendix 3 Special Resource Mitigation Guideline page 61.

To minimize user conflicts during the hunting season the following stipulation would be applied to lease parcels:

To protect recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, which begins on October 1 and ends November 20, within the Absaroka Front SRMA, as mapped in the Worland Field Office GIS database..

Impacts to wilderness characteristics will be the same as alternative 1.

Alternative 3

The lease parcels nominated would not be available for sale. No effects beyond current management would occur.

Cultural and Historical Resources

Alternative 1

Cultural resource sites are known to occur within the lease parcels. Sale of the lease will have no effect on known or unknown cultural properties. However, construction as a result of the lease sale could damage or destroy surface and buried cultural sites. A Class III cultural resource inventory would be completed prior to surface disturbance at the APD or right-of-way application stage. Avoidance/mitigation measures would be developed once the site-specific inventory is completed.

Alternative 2

No additional consequences would be expected under this alternative.

Alternative 3

Under the No Action Alternative, the proposed Action would not occur. No resulting effects on cultural resources would be expected to occur beyond the current situation.

Socioeconomics

Alternative 1

Under this alternative all parcels would be offered for lease. This would allow the most revenue for the Federal and State government. In addition, subsequent development and production is anticipated to be highest under this alternative. This would result in the greatest amount of royalties among the three alternatives.

Alternative 2

Under this alternative, not all parcels would be offered for lease. This will result in a reduction in revenue compared to Alternative 1 for the Federal and State government. The actual amount of the reduction is not known. Subsequent development and production would result in fewer royalties than Alternative 1, but more than Alternative 2.

Alternative 3

Under this alternative, no leases would be issued and no development under those leases would occur. As primarily rural communities that rely heavily on energy development revenue and agricultural uses, the communities in the leasing areas are likely to be negatively impacted by loss of potential revenue from subsequent development, of these parcels. It is an assumption that the No Action Alternative (no lease option) may result in a slight reduction in domestic production of oil and gas. This would likely result in reduced Federal and State royalty income, and the potential for Federal land to be drained by wells on adjacent private or state land.

However, the pace of development has historically been slower than that in many areas of the state, with approximately 31 Applications for Permits to Drill (APD) approved per year. The projection under the latest Reasonable Foreseeable Development scenario is for approximately 60 wells per year. Because there is demand for oil and gas, if the leases are not issued the parcels

may be re-nominated and leased in the future under more stringent stipulations. This would still allow for development of leases, and generation of revenue from Federally-managed minerals. .

Fire & Fuels Management

Alternative 1

Issuing these leases will have both positive and negative consequences. Well pads, road development and other surface disturbance activities associated with the facilities will remove areas of burnable vegetation. This will result in increasing access/egress to the area and will interrupt fuel continuity aiding in wildland fire suppression and project implementation. Risk to firefighter safety may be increased with the potential increase of H₂S in the area. Oil and gas facilities will also increase the wildland urban interface in the form of industrial urban interface. Human caused fires could potentially increase due to increased human activity in the area.

Alternative 2

Same as alt 1

Alternative 3

Same as existing management.

Cumulative Effects

The parcels offered are not within or near well developed fields. Exploration and development of hydrocarbon resources outside of well-developed areas increases the distance required for roads, pipelines, and power lines.

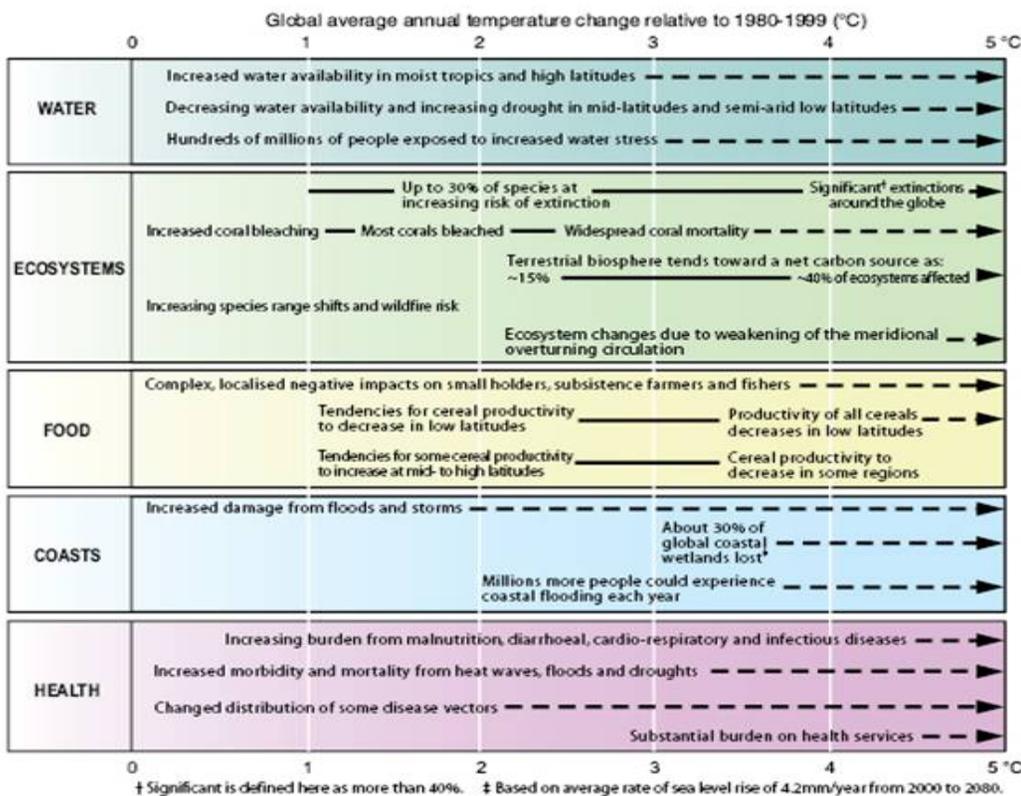
There are approximately 2,688 Federal producing wells in the Worland Field Office; there are no producing coalbed methane production wells. Analysis of cumulative impacts for reasonably foreseeable development (RFD) of oil and gas wells on public lands in the Worland Field Office is presented in the 1988 Draft Grass Creek . Potential development of all available federal minerals in the field office, including those in the proposed lease parcels, was included as part of the analysis.

As described in the analysis of environmental consequences, the proposed action and/or the alternative may contribute to the effects of climate change to some extent through GHG emissions. However, it is not currently possible to associate any of these particular actions with the creation of any specific climate-related environmental effects. The lack of scientific tools designed to predict climate change at regional or local scales limits the ability to quantify potential future impacts.

The assessment of greenhouse gas (GHG) emissions and climate change is still in its formative phase; therefore, it is not yet possible to know with confidence the net impact on climate. However, the Intergovernmental Panel on Climate Change (IPCC 2007) recently concluded that “warming of the climate system is unequivocal” and “most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations.” As the temperatures of the land and sea change, environmental factors such as weather patterns, sea levels, precipitation rates, the timing of the seasons, desert distribution, forest cover, and ocean salinity will also change. These changes influence the world’s climate systems and will have different impacts to different areas. Some agricultural regions may become more arid while others become wetter; some mountainous areas will experience greater summer precipitation, yet experience disappearing snowpack.

The average number of oil and gas wells drilled annually in the Field Office and probable GHG emission levels, when compared to the total GHG emission estimates from the total number of Federal oil and gas wells in the State, represent an incremental contribution to the total regional and global GHG emission levels. This incremental contribution to global GHG gases cannot be translated into incremental effects on climate change globally or in the area of these site-specific actions. As oil and gas and natural gas production technology continues to improve in the future, one assumption is that it may be feasible to further reduce GHG emissions.

Based on research compiled for the International Panel on Climate Change Fourth Assessment Report, 2007, potential effects of climate change on resources in the affected environment are likely to be varied. Figure 4.1, taken from the Fourth Assessment Report indicates varying responses of the natural world to increasing temperatures as a result of increasing global temperatures.



Within North America, the report specifically forecasts that: Warming in western mountains is projected to cause decreased snowpack, more winter flooding and reduced summer flows, exacerbating competition for over-allocated water resources; in the early decades of the century, moderate climate change is projected to increase aggregate yields of rain-fed agriculture by 5 to 20%, but with important variability among regions; major challenges are projected for crops that are near the warm end of their suitable range or which depend on highly utilized water resources; cities that currently experience heat waves are expected to be further challenged by an increased number, intensity and duration of heat waves during the course of the century, with potential for adverse health impacts and coastal communities and habitats will be increasingly stressed by climate change impacts interacting with development and pollution. Specific modeling and/or assessments of the potential effects for the Worland Field Office and for the State of WY currently do not exist.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) pointed out that by the year 2100, global average surface temperatures would increase 2.5 to 10.4°F above 1990 levels (IPCC 2007). The National Academy of Sciences (2006) has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Computer model forecasts indicate that increases in temperature will not be evenly or equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

Regarding the linkage between climate change related warming and associated impacts, an assessment of the IPCC states that difficulties remain in attributing observed temperature changes at smaller than continental scales. Therefore, it is currently beyond the scope of existing science to predict climate change on regional or local scales resulting from specific sources of GHG emissions. Emissions of all regulated pollutants (including GHGs) and their impacts will be quantified and evaluated at the time that a specific development project is proposed.

IPCC also discloses that significant uncertainties remain with respect to the estimates of the current level of emissions and projections of future production of fossil fuels as the oil and gas industry is difficult to forecast with the mix of drivers: economics, resource supply, demand, and regulatory procedures. The assumptions used for the projections, based on recent trends or State production trends in the near-term, and AEO2006 growth rates through 2020, do not include any significant changes in energy prices, relative to today's prices. Large price swings, resource limitations, or changes in regulations could significantly change future production and the associated GHG emissions. Other uncertainties include the volume of GHGs vented from gas processing facilities in the future, any commercial oil shale or coal-to-liquids production, and potential emissions-reducing improvements in oil and gas production, processing, and pipeline technologies.

Based on a 0.00059 mt/well emission factor, an RFD of 93 wells drilled and produced per year would result in approximately 0.0550175 mt of CO₂e, potentially being added to the current levels associated with oil and gas development in the Buffalo Field Office. It is unknown what the drilling density may be for these parcels, if they were to be developed; therefore, it is impossible to predict what level of emissions could occur from development at this stage under the proposed action. Additionally, this assumes that each well produces at the same volumes, with the same emission factor. Coalbed methane wells, due to a higher methane content, may emit greenhouse gas emissions at a higher or lower level than convention oil and gas wells.

There are currently no proposals for renewable energy projects in the Worland Field Office that could potentially contribute additional GHG emissions.

Tribes, Individuals, Organizations, or Agencies Consulted:

In addition to our review of the parcels in relationship to the decisions set forth in the Grass Creek RMP, we have also coordinated our review of the list with the local Wyoming Game and Fish Department personnel.

Table 1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination
Bart Kroger/Tim Wooley	Wyoming Game & Fish Dept.

List of Preparers

Table 2. List of Prepares

Name	Title
Tim Stephens	Wildlife Biologist
Marit Bovee	Archaeologist
Karen Hepp	Range Management Specialist
Jon Tietmeyer	Range Management Specialist
Paul Rau	Recreation Specialist
Holly Elliott	Natural Resource Specialist
Steve Kiracofe	Soils Scientist
Jared Dalebout	Hydrologist
Rance Neighbors	Fire Management Officer
CJ Grimes	NRS/Weeds

Lease Parcel List

WY-1011-161 120.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 003 N2SW;

004 NESE;

Hot Springs County

WY-1011-162 240.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 003 S2S2,N2SE;

Hot Springs County

WY-1011-163 80.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 SENE;

T.0460N, R.1000W, 06th PM, WY

Sec. 033 SWSE;

Hot Springs County

WY-1011-164 160.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 S2NW;

T.0460N, R.1000W, 06th PM, WY

Sec. 033 S2SW;

Hot Springs County

WY-1011-165 200.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 SESE;

009 N2N2;

Hot Springs County

WY-1011-166 160.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 E2SW,W2SE;

Hot Springs County

WY-1011-167 160.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 009 S2NE,N2SE;

Hot Springs County

WY-1011-168 240.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 009 S2NW,SW;

Hot Springs County

WY-1011-169 320.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 010 N2;

Hot Springs County

WY-1011-170 360.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 026 SWNE,S2NW,N2SW,SWSW,NWSE;

027 E2SE;

Hot Springs County

WY-1011-171 200.000 Acres

T.0460N, R.1000W, 06th PM, WY

Sec. 033 SENE,N2S2;

Hot Springs County

WY-1011-173 1062.940 Acres

T.0450N, R.1010W, 06th PM, WY

Sec. 003 LOTS 5-10;

004 LOTS 5-9;

009 E2E2;

010 W2NE,NW,NESW;

015 SWNE,NW;

Hot Springs County

WY-1011-174 720.000 Acres

T.0450N, R.1010W, 06th PM, WY

Sec. 003 S2NE,SENE,NESW,S2SW,N2SE;

003 SWSE;

004 S2NW,SW,W2SE,SESE;

Hot Springs County

Alternative 2 – Lease Parcels with Recommended Stipulations

WY-1011-161 120.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 003 N2SW;

004 NESE;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting nesting Raptors.

CSU (1) The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting *Ursus arctos horribilis* (Grizzly bear); Rocky Mountain Twinpod (*Physaria saximontana* var *saximontana*).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-162 240.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 003 S2S2,N2SE;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting nesting Raptors.

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procedure for conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting *Ursus arctos horribilis* (Grizzly bear); Rocky Mountain Twinpod (*Physaria saximontana* var *saximontana*).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-163 80.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 SENE;

T.0460N, R.1000W, 06th PM, WY

Sec. 033 SWSE;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting *Ursus arctos horribilis* (Grizzly bear).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-164 160.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 S2NW;

T.0460N, R.1000W, 06th PM, WY

Sec. 033 S2SW;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting *Ursus arctos horribilis* (Grizzly bear).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-165 200.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 SESE;

009 N2N2;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Worland Field Office GIS database; (3) protecting nesting Raptors.

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

CSU (1) The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database (3) protecting *Ursus arctos horribilis* (Grizzly bear).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-166 160.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 004 E2SW,W2SE;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting nesting Raptors.

CSU (1) The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for

conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting *Ursus arctos horribilis* (Grizzly bear).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-167 160.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 009 S2NE,N2SE;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Worland Field Office GIS database; (3) protecting nesting Raptors.

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

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habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting *Ursus arctos horribilis* (Grizzly bear).

TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-168 240.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 009 S2NW,SW;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Worland Field Office GIS database; (3) protecting nesting Raptors.

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

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TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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 Grass Creek Planning Area GIS database; (3) protecting paleontological values.

WY-1011-169 320.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 010 N2;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Feb 1 to Jul 31; (2) as mapped on the Worland Field Office GIS database; (3) protecting nesting Raptors.

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

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TLS (1) Oct 1 to Nov 20; (2) as mapped on the Grass Creek Planning Area GIS database; (3) protecting recreational user experience, project activities or surface use will not be allowed during the fall big-game hunting seasons, within the Absaroka Front SRMA.

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WY-1011-170 360.000 Acres

T.0450N, R.1000W, 06th PM, WY

Sec. 026 SWNE,S2NW,N2SW,SWSW,NWSE;

027 E2SE;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range

CSU (1) Surface occupancy or use within the overlapping big game crucial winter ranges 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 Worland Field Office GIS database; (3) protecting habitat quality and preventing loss of overlapping big game crucial winter ranges.

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CSU (1) Surface occupancy or use within 1/4 mile or visual horizon of the 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 Ft. Washakie/Meeteetse Trail

WY-1011-171 200.000 Acres

T.0460N, R.1000W, 06th PM, WY

Sec. 033 SENE,N2S2;

Hot Springs County

Worland FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range.

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Affected Resources Form

Nov. 2010 Nominated Lease Parcel Review

Project Information

NEPA (ePlanning) Number	DOI-BLM-WY-R010-2010-0012-EA
Project Name	Nov. 2010 Nominated Lease Parcel Review
Project Lead/Manager	Holly Elliott
Project/Activity Type	Lease Parcel Review
Legal Description	T 45N, R100/101W; 6th PM, WY
Map (7.5–mintue USGS topo map)	
Tiered off EA/EIS/BO/ other	Grass Creek RMP, Sept. 1998

Description:

DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)

- NP = not present in the area impacted by the proposed or alternative actions
- NI = present, but not affected to a degree that detailed analysis is required
- PI = present with potential for relevant impact that need to be analyzed in detail in the EA

Table 3. Affected Resources Form

Deter- mina- tion	Resource	Rationale for Determination	Digital check off	Date
PI	Air Quality	No direct effects. However development and production, which could not occur absent a lease, would have direct and indirect impacts.	Caleb Hiner	7/9/2010
NP	Areas of Critical Environmental Concern			
NP	BLM Natural Areas			
PI	Cultural Resources	Sale of the lease will have no direct effect. Indirect would include surface disturbance and potential damage to surface and buried resources.	Marit Bovee	7/16/2010

PI	Greenhouse Gas Emissions	No direct effects. However development and production, which could not occur absent a lease, would have direct and indirect impacts.	Caleb Hiner	7/9/2010
NP	Environmental Justice	No minority or low income populations disproportionately impacted.	Caleb Hiner	7/9/2010
NP	Farmlands (Prime or Unique)			
PI	Fish and Wildlife Excluding Federally Listed Species	No direct impacts from leasing. Indirect would include surface disturbing and disruptive activities.	Tim Stephens	7/14/2010
NP	Floodplains			
PI	Fuels/Fire Management	No direct impacts from leasing. Indirect would include surface disturbance and wildland urban interface conflicts.	Rance Neighbors	7/13/2010
PI	Geology / Mineral Resources/Energy Production			
	Hydrologic Conditions			
PI	Invasive Species/ Noxious Weeds	Invasive Species and Noxious Weeds have been documented in project area.	CJ Grimes	7/19/2010
PI	Lands/Access	Private lands associated with proposed action.	Holly Elliott	7/19/2010
	Livestock Grazing			
PI	Migratory Birds	No direct impacts from leasing. Indirect would include surface disturbing and disruptive activities.	Tim Stephens	7/14/2010
NP	Native American Religious Concerns	None identified.	Marit Bovee	7/16/2010
PI	Paleontology	Sale of the lease will have no direct effect. Indirect would include surface disturbance and potential damage to surface and buried resources.	Marit Bovee	7/16/2010
	Rangeland Health Standards			

	Recreation			
PI	Socio-Economics	Direct and indirect effects to economics as a result of lease royalties.	Caleb Hiner	7/9/2010
	Soils			
	Threatened, Endangered or Candidate Plant Species			
PI	Threatened, Endangered or Candidate Animal Species	No direct impacts from leasing. Indirect would include surface disturbing and disruptive activities.	Tim Stephens	7/14/2010
NP	Wastes (hazardous or solid)	None know to exist in project area.	Holly Elliott	7/19/2010
	Water Resources/ Quality (drinking/ surface/ground)			
	Wetlands/Riparian Zones			
NP	Wild and Scenic Rivers			
NP	Wilderness/WSA			
NI	Woodland / Forestry			
PI	Vegetation Excluding Federally Listed Species	No direct impacts from leasing. Indirect would include surface disturbing and disruptive activities.	Holly Elliott	7/19/2010
PI	Visual Resources	No direct impacts from leasing. Indirect would include surface disturbing and disruptive activities.	Paul Rau	7/19/2010
NP	Wild Horses and Burros			
NP	Areas with Wilderness Characteristics			