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Environmental Assessment
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NOVEMBER 2010 COMPETITIVE OIL AND GAS LEASE SALE

Kemmerer Field Office
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Affected Resources EA Checklist

Bureau of Land Management, Kemmerer Field Office

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Determination	Resource	Rationale for Determination
PI	Air Quality	No effects associated with leasing. Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS (Tables J-6 – J-23, pp. J-16 – J-33, pp. 4-7– 4-12).
NI	Areas of Critical Environmental Concern	August 2008 Kemmerer RMP/FEIS (pp. 4-232, 4-241–4-243).
NP	BLM Natural Areas	
NI	Cultural Resources (including National Historic Trails)	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (pp. 4-169 – 4-175).
PI	Greenhouse Gas Emissions	No direct greenhouse gas emissions associated with leasing. Minimal emissions possible under expected actual development. New information on greenhouse gas emissions available August 2008 Kemmerer RMP/FEIS (pp.4-7– 4-8).
NP	Environmental Justice	August 2008 Kemmerer RMP/FEIS (pp. 4-266– 4-267).
NP	Farmlands (Prime or Unique)	
NI	Fish and Wildlife Excluding Federally Listed Species	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (pp. 4-54, 4-56, 4-84–4-85, 4-88–4-89, 4-96, 4-110–4-114).
NI	Floodplains	Sec. 4.4.3, pp. 4-73–4-83.
NI	Fuels/Fire Management	Sec. 4.3, pp. 4-46–4-49.
NI	Geology/Mineral Resources/Energy Production	Effects from surface disturbing activities and other activities associated with fluid mineral leasing was analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.2, pp. 4-26–4-45).
NI	Hydrologic Conditions	Effects from surface disturbing activities and other

		activities associated with fluid mineral leasing was analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.1.3, pp. 4-18-4-25).
NI	Invasive Species/Noxious Weeds	The Kemmerer Field Office operates under INPS protocols as set forth in the following documents (Executive Order 13112-1999 provides guidance to federal agencies involving INPS); Vegetation Treatment on BLM Lands in the Seventeen Western States FEIS and ROD (2007); Cooperative Agreements with the State of Wyoming and the Lincoln County and Uinta County Weed and Pest Districts. August 2008 Kemmerer RMP/FEIS, Sec. 4.4.9, pp. 4-154-4-156, 4-160-4-161.
NI	Lands/Access	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (pp. 4-186-4-190).
NI	Livestock Grazing	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (pp. 4-198-4-204, 4-207-4-208).
NI	Migratory Birds	The act of the proposed action (leasing) would have no affect on this resource. Site specific NEPA for proposed surface disturbing activities would further analyze affects and mitigation applied in compliance with the Migratory Bird Species-Interim Management Guidance Policy (included within Instruction Memorandum No. 2008-050). August 2008 Kemmerer RMP/FEIS, pp. 4-110-4-112.
NI	Native American Religious Concerns	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (p. 4-179).
NI	Paleontology	The act of the proposed action (leasing) would have no affect on this resource. Impacts from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS (Sec. 4.5.4, pp. 4-180-185).
NI	Rangeland Health	Effects from surface disturbing activities and other

	Standards	activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (pp. 4-198-4-204, 4-207-4-208).
NI	Recreation	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.6.5, pp. 4-208-4-214).
NI	Socio-Economics	August 2008 Kemmerer RMP/FEIS (Sec. 4.8, pp. 4-248-4-263).
NI	Soils	Affects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.1.2, pp. 4-12-4-18).
NI	Threatened, Endangered or Candidate Plant Species	August 2008 Kemmerer RMP/FEIS (pp.4-114-4-117, 4-123-4-124).
PI	Special Status Plant and Animal Species, including Fish	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS (Sec. 4.4.7, pp. 4-124-4-129, Sec. 4.4.8, pp. 4-130-4-153).
NP	Wastes (hazardous or solid)	August 2008 Kemmerer RMP/FEIS (pp. 4-265-4-266).
NI	Water Resources/Quality (drinking/surface/ground)	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.1.3, pp. 4-18-4-25).
NI	Wetlands/Riparian Zones	August 2008 Kemmerer RMP/FEIS (Sec. 4.4.3, pp. 4-73-4-83).
NI	Wild and Scenic Rivers	August 2008 Kemmerer RMP/FEIS (p. 4-244).
NP	Wilderness/WSA	August 2008 Kemmerer RMP/FEIS (pp. 2-6-2-7, 4-246).
NP	Woodland/Forestry	August 2008 Kemmerer RMP/FEIS (p. 4-61).
NI	Vegetation Excluding Federally Listed Species	Effects from surface disturbing activities and other activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.4.2, pp. 4-63-4-72). In addition, based on site specific NEPA WY Reclamation Policy would be implemented if development were initiated.
NI	Visual Resources	Effects from surface disturbing activities and other

		activities associated with fluid mineral leasing were analyzed in the August 2008 Kemmerer RMP/FEIS with appropriate mitigation measures attached to lease parcels (Sec. 4.6.8, pp. 4-220–4-225). In addition, the VRM BMPs would be implemented based on a site specific NEPA document if development were initiated.
NP	Wild Horses and Burros	No WHB herd units identified in the Kemmerer Field Office area.
NP	Areas with Wilderness Characteristics	The BLM conducted a recreation and scenic values inventory during the Kemmerer RMP planning effort (FEIS Appendix I, pgs I-2 to I-10). The BLM KFO continually inventories and monitors the planning area with respect to wilderness values. Areas outside of the Raymond Mountain WSA have been monitored and assessed and the KFO has determined that no other areas within the planning area retain wilderness characteristics (FEIS Chapter 2, pg 2-6, 7). Parcels identified in this assessment were re-evaluated for wilderness characteristics in July, 2010. It was determined that none of the parcels contained lands with wilderness characteristics. See Appendix C.*

*Note that Appendix C does not include any of the “unavailable” parcels described in section 1.2.

DETERMINATION –

NP – not present in the area impacted by the proposed or alternative actions

NI – present, but adequately analyzed in RMP/FEIS for leasing actions

PI – present, not analyzed in RMP/FEIS or new information requires further analysis in the EA

BUREAU OF LAND MANAGEMENT
KEMMERER FIELD OFFICE
ENVIRONMENTAL ASSESSMENT FOR
NOVEMBER 2010 COMPETITIVE OIL AND GAS LEASE SALE
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1.0 INTRODUCTION

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. The BLM Wyoming State Office conducts a quarterly competitive lease sale to sell available oil and gas lease parcels in Wyoming and Nebraska. 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. Once the draft parcel review 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 purpose of this document is to analyze the impacts of offering parcels for competitive oil and gas leasing to allow private individuals or companies to explore for and develop oil and gas resources on public lands. The analysis is needed to meet BLM's obligations under federal statutes. The following Environmental Assessment (EA) documents the Kemmerer Field Office review of five parcels with a total of 5,477.77 acres that were nominated for the November 2010 Competitive Oil and Gas Lease Sale, and that are under the administration of the Kemmerer Field Office. It serves to verify conformance with the approved land use plan, as well as providing rationale for attaching additional lease stipulations to specific parcels.

1.1 Purpose and Need

The BLM's purpose and need for offering parcels in the November 2010 lease sale is to provide areas for the potential exploration and development of additional oil and gas resources to help meet the nation's current and expanding need for energy sources. Wyoming is a major source of natural gas for heating and electrical energy production in the United States. The sale and issuance of oil and gas leases also is needed to meet the requirements of Mineral Leasing Act and FLPMA. Oil and gas leasing provides oil and gas companies the opportunity to expand existing areas of production and to locate previously undiscovered oil and gas resources to help meet the public's energy demands.

1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments

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 Kemmerer Resource Management Plan(RMP)/Final Environmental Impact Statement(FEIS) (August 2008). The Plan was approved by a Record of Decision (ROD) signed May 2010.

According to the Kemmerer RMP/ROD, "Approximately 95,722 acres of federal mineral estate are administratively available to oil and gas leasing subject to the terms and conditions of the standard lease form only. Approximately 967,635 acres of federal mineral estate are administratively available to oil and gas leasing subject to the terms and conditions of the standard lease form, as well as moderate constraints. Approximately 333,848 acres of federal mineral estate are administratively available to oil and gas leasing subject to the terms and conditions of the standard lease form, as well as major constraints. Approximately 181,775 acres of federal mineral estate are administratively unavailable for oil and gas leasing. Fluid mineral leasing is allowed on areas within potential habitats for federally listed species. Fluid mineral leasing is allowed in areas containing NHT segments. Existing oil and gas leases are suspended in the MMTA. The MMTA is administratively unavailable for new fluid mineral leasing until the oil and gas resource can be recovered without compromising the safety of underground miners. Areas set aside specifically for public recreation purposes would be administratively unavailable for oil and gas leasing. Fluid mineral leasing is currently allowed on areas within large, contiguous blocks of federal land containing sagebrush, mountain shrub, and aspen habitat."

According the Kemmerer RMP/ROD, the Rock Creek/Tunp area is an area of significant resource concern, with a management objective of preserving and enhancing the critical wildlife habitats and cultural values that occur within the area. The area will be managed with additional prescriptions as follows: "The area is administratively unavailable for all new fluid mineral leasing consideration; expired leases are not reissued."

According the Kemmerer RMP/ROD, the Bear River Divide area is an area of significant resource concern, with a management objective of preserving and enhancing the critical wildlife habitats and cultural values that occur within the area. The area will be managed with additional prescriptions as follows: "The area is administratively unavailable for new fluid mineral leasing on the currently unleased lands within the Bridger Creek/Twin Creek watersheds (31,802 acres); lands currently leased can have new leases issued."

Of the five nominated parcels, three parcels are completely unavailable for leasing based on decisions in the May 2010 Kemmerer RMP/ROD, and one parcel is partially unavailable.

THE FOLLOWING ENTIRE PARCELS ARE UNAVAILABLE TO LEASING:

1. WY- 1011 - 177 - Within the Rock Creek/Tunp area.
2. WY- 1011 - 178 - Within the Rock Creek/Tunp area.
3. WY- 1011 - 179 - Within the Rock Creek/Tunp area.

THE FOLLOWING PARCEL IS PARTIALLY DEFERRED:

1. WY- 1011 - 176 – Within the Bear River Divide area

For parcel #176, the original parcel configuration was as follows:

WY-1011-176 1269.440 Acres
T.0210N, R.1190W, 06th PM, WY
Sec. 009 NENW (EXCL 6.89 AC IN
009 RR ROW WYW0294448);
010 ALL;
012 W2NE,SENE,E2W2,SWSW,SE;
012 NENE (EXCL 3.67 AC IN
012 RR ROW WYW0294448);
017 SWSW,SESE;

Lincoln County
Kemmerer FO

The area available for leasing after removing the area that is unavailable is as follows:

WY-1011-176 80.000 Acres
T.0210N, R.1190W, 06th PM, WY
Sec. 017 SWSW,SESE;

Lincoln County
Kemmerer FO

This parcel as re-configured consists of private surface/Federal minerals.

1.3 Leasing

Analysis as required by the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-90, USC 4321 *et seq.*) was conducted by Field Office resource specialists who relied on personal knowledge of the areas involved and/or reviewed existing databases and file information to determine if appropriate stipulations had been attached to specific parcels prior to being made available for lease.

At the time of this review, it is unknown whether a parcel will be sold at the November, 2010 competitive lease sale, and a lease issued. It is unknown when, where, or if future well sites or roads might be proposed. Detailed site-specific analysis of individual wells or roads would occur when a lease holder submits an Application for Permit to Drill (APD).

The Energy Policy Act of 2005 categorically excludes certain oil and gas development activities from further NEPA analysis. However, excluded projects must conform with the applicable RMP including any restrictions to development presented in the Plan.

Issuance of leases would not be in conflict with any local, county, or state plans.

1.4 Federal, State or Local Permits, Licenses or Other Consultation Requirements

Purchasers of oil and gas leases are required to obey all applicable federal, state, and local laws and regulations including obtaining all necessary permits required should lease development occur.

Kemmerer Field Office endangered species specialists reviewed the proposed action and determined it would be in compliance with threatened and endangered species management guidelines. As there are no documented T&E species or their habitats located within the parcels, no further consultation with the U.S. Fish and Wildlife Service is required at this stage.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative A - No Action

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. Therefore under this alternative the Kemmerer Field Office would not make a recommendation to the State Director that the two parcels be offered for oil and gas leasing. Without leasing, there would be no new impacts from oil and gas production on the parcel lands, no additional royalties for the Federal and State treasuries, and current management and uses of the lands would continue.

2.2 Alternative B - Proposed Action Full Lease Issuance

The Proposed Action would be a recommendation to the State Director to offer for oil and gas leasing two parcels of federal minerals covering 400 acres that are administered by the Kemmerer Field Office. Standard terms and conditions as well as special stipulations would apply. Lease stipulations (as required by Title 43 Code of Federal Registration 3131.3) would be added to the two parcels to address site specific concerns or new information not identified in the land use planning process.

The two parcels would be included in the lease sale with the lease stipulations and lease notices. Parcel number, acreage, and location of parcels are listed in Appendix A with the attached stipulations.

Once sold, the lease purchaser has the right to use so much of the leased lands as is reasonably necessary to explore and drill for all of the oil and gas within the lease boundaries, subject to the stipulations attached to the lease (Title 43 Code of Federal Registration 3101.1-4).

Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lessee fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, ownership of the minerals leased revert back to the federal government and the lease can be resold.

Drilling of wells on a lease is not permitted until the lease owner or operator secures approval of an APD including a surface use plan as specified in Title 43 Code of Federal Registration 3162.

3.0 AFFECTED ENVIRONMENT

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Aspects of the affected environment described in this section focus on relevant major resources and issues. Certain critical environmental components require analysis under BLM policy. Only those aspects of the affected environment that are potentially impacted are described in detail.

One of the parcels under the Proposed Action is located in Uinta County, Wyoming, and one is located in Lincoln County.

3.1 Air Resources:

Air quality and climate are the components of air resources, which include applications, activities, and management of the air resource. BLM must consider and analyze the potential effects of authorized activities on air resources as part of the planning and decision making process.

Air Quality

Regional air quality is influenced by the interaction of meteorology, climate, the magnitude and spatial distribution of local and regional air pollutant sources, and the chemical properties of emitted air pollutants. The following sections summarize the existing climate and air quality within the area potentially affected by the parcels under consideration for leasing.

A variety of pollutants can affect air quality; these pollutants and their effects on health, visibility, and ecology are described in the following sections, along with data on existing air quality conditions found within the Kemmerer Field Office area.

EPA has delegated regulation of air quality to the State of Wyoming and is administered by the Wyoming Department of Environmental Quality. Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS) identify maximum limits for concentrations of criteria air pollutants at all locations to which the public has access. The WAAQS and NAAQS are legally enforceable standards. Concentrations above the WAAQS and NAAQS represent a risk to human health that, by law, require public safeguards be implemented. State standards must be at least as protective of human health as federal standards, and may be more restrictive than federal standards, as allowed by the Clean Air Act. Currently, the WDEQ-AQD does not have regulations regarding greenhouse gas emissions, although these emissions are regulated indirectly by various other regulations.

Concentrations:

Pollutant concentration can be defined as the mass of pollutant present in a volume of air and is reported in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), parts per million (ppm), or parts per billion (ppb). The State of Wyoming has used monitoring and modeling to determine that the Kemmerer Field Office area is currently in compliance with Wyoming and federal concentration standards. In addition, non-reference method monitoring systems are operational, including the *Clean Air Status and Trends Network* (CASTNet) and *Wyoming Air Resources Monitoring System* (WARMS). Data from these systems have been determined to be representative of the area. Established, referenced monitoring stations occur outside of the Kemmerer Field Office area near Pinedale (north) and Green River (southeast). The referenced data is the most current and predictive for the region.

Criteria air pollutants are those for which national concentration standards have been established; pollutant concentrations greater than the established standards represent a risk to human health or welfare. Table 3.1 presents background concentrations of criteria air pollutants as determined by the Wyoming Department of Environmental Quality–Air Quality Division (WDEQ–AQD). Background concentrations are in compliance with applicable Wyoming and national ambient air quality standards (WAAQS/NAAQS). Also included in Table 3.1 are Prevention of Significant Deterioration (PSD) increments for Class I areas (wilderness areas with protected air quality status due to their pristine condition) and Class II areas (wilderness areas with protected air quality status due to their sensitive condition). All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis. NAAQS/WAAQS have been established for the following criteria pollutants:

Carbon monoxide (CO) is an odorless, colorless gas formed during combustion of any carbon-based fuel, such as during operation of engines, fireplaces, furnaces, etc. Because carbon monoxide data are generally collected only in urban areas where automobile traffic levels are high, recent data are often unavailable for rural areas. Background carbon monoxide data were collected in Ryckman Creek (BLM 1983) in southwest Wyoming and in Rifle and Mack, Colorado during the late 1970s and the early 1980s. These are the most representative available data for the Project Area. Background carbon monoxide concentrations were 5.6–14% of the applicable WAAQS (Table 3.1)

Table 3.1: Air Pollutant Background Concentrations, NAAQS/WAAQS and Prevention of Significant Deterioration (PSD) Increments ($\mu\text{g}/\text{m}^3$).

Pollutant/Averaging Time	Background Concentration ($\mu\text{g}/\text{m}^3$)	NAAQS and WAAQS ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS and WAAQS	Incremental Increase Above Legal Baseline ^a	
				PSD Class I	PSD Class II
CO					
1-hour	3,336 [†] 2,229 ^{††}	40,000	8.3% [†] 5.6% ^{††}	n/a	n/a
8-hour	1,381 [†] 1,148 ^{††}	10,000	13.8% [†] 11.5% ^{††}	n/a	n/a
NO₂[‡]					
Annual	3.4	100	3.4%	2.5	25
(O₃)[€]					
8-hour	147	157	93.6%		
PM₁₀ⁱ					
24-hour	48	150	32.0%	8	30
Annual	25	50- WAAQS	50.0%	4	17
PM_{2.5}ⁱ					
24-hour	15	35- NAAQS 65- WAAQS	42.9% 23.1%	n/a	n/a
Annual	7.8	15	52.0%	n/a	n/a
(SO₂)ⁱⁱ					
3-hour	29	1,300	2.2%	25	512
24-hour (National)	43	365	11.8%	5	91
24-hour (Wyoming)	18	260	6.9%	5	91
Annual (National)	9	80	11.3%	2	20
Annual (Wyoming)	5	60	8.3%	2	20
<p>n/a = not applicable, PSD = prevention of significant deterioration.</p> <p>a All NEPA analysis comparisons to the PSD increments are indented to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis.</p> <p>[†] Background data collected by Amoco at Ryckman Creek for an 8-month period during 1978–1979, summarized for the Riley Ridge Project (BLM 1983)</p> <p>^{††} Background data collected at Rifle and Mack, Colorado in conjunction with proposed oil shale development during the early 1980's.</p> <p>[‡] Background data collected at Green River Basin Visibility Study site, Green River, Wyoming, during the period January–December 2001 (Air Resource Specialists 2002).</p>					

€ Background data collected at Green River Basin Visibility Study site, Green River, Wyoming, during the period June 10, 1998, through December 31, 2001 (Air Resource Specialists 2002).

i Background data for PM10 collected by Wyoming Department of Environmental Quality/Air Quality Division (WDEQ/AQD) at Rock Springs, Wyoming, in 2005. PM2.5 based on a 1:3.2 PM2.5:PM10 ratio based on three full years of PM10 data (1997-1999) collected in Rock Springs as part of the Green River Basin Visibility Study. These data have been determined by WDEQ/AQD to be the most representative data available.

ii Background data for Wyoming (3 hour, 24 hour and annual) collected at the Craig Power Plant site and oil shale areas from 1980-1984 (CDPHE 1996).

Nitrogen dioxide (NO₂) is a highly reactive compound formed at high temperatures during operation of fossil fuel combustion. At high concentrations, it can form a red-brown gas. At concentrations in excess of the EPA air quality standard, it is a respiratory irritant; however, all areas of the United States are in compliance with this air quality standard. During fossil fuel combustion, NO is released into the air which reacts in the atmosphere to form NO₂. NO plus NO₂ is a mixture of nitrogen gases, collectively called nitrogen oxides (NO_x). NO_x emissions can convert to ammonium nitrate particles and nitric acid which can cause visibility impairment and atmospheric deposition. Nitrogen dioxide can contribute to “brown cloud” conditions and ozone formation, and can convert to ammonium (NH₄), nitrate particles (NO₃), and nitric acid (HNO₃). Internal combustion engines are one source of NO_x. However, coal fired power plants often have the highest NO_x emissions although any combustion source will produce NO_x. Figure 3.1 shows mean annual concentrations of nitrogen compounds at the Pinedale CASTNet site from 1989 through 2004. Nitrogen dioxide data were collected in Green River, Wyoming, from January 2001 to December 2001. Background concentrations of nitrogen dioxide were 3.4% of the applicable WAAQS (Table 3.1).

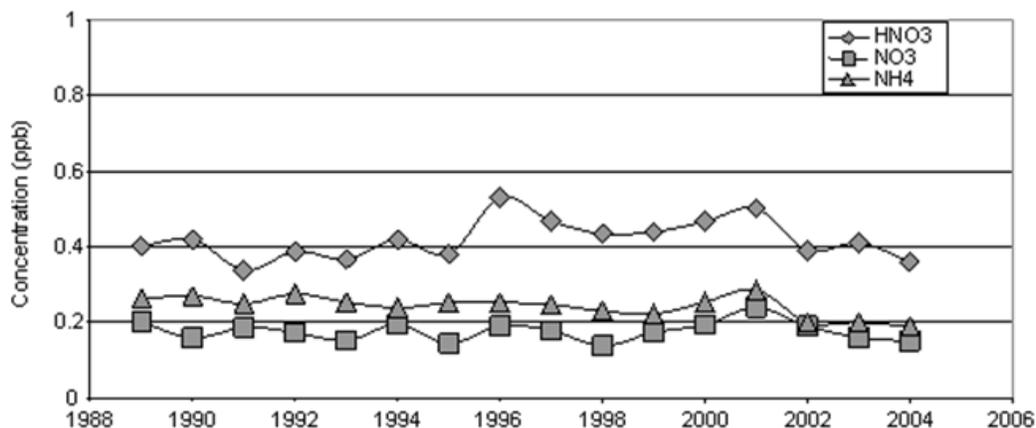


Figure 3.1: Mean Annual Concentrations of Nitrogen Compounds near Pinedale, Wyoming. Concentrations typical in remote areas are: HNO₃ = 0.3 ppb, NO₃ = 0.2 ppb, NH₄ = 0.3 ppb. Data taken from CASTNET Pinedale Station PND165.

Ozone (O₃) is a faint blue gas that is generally not emitted directly into the atmosphere but is formed in the atmosphere from complex photochemical reactions involving NO₂ and volatile reactive organic compounds (VOC). Sources of VOCs include automotive emissions, paint, varnish, oil and gas operations and some types of vegetation. The faint acrid smell common after thunderstorms is caused by ozone formation by lightning. O₃ is a strong oxidizing chemical that can burn lungs and eyes, and damage plants. Ozone is a severe respiratory irritant at concentrations in excess of the federal standards. On January 6, 2010, EPA proposed that the primary ozone standard be set between 0.060 and 0.070 ppm.

In March 2008 the U.S. Environmental Protection Agency (EPA) promulgated the current National Ambient Air Quality Standard (NAAQS) for ozone. The ozone standard was lowered from 0.08 parts per million (ppm) to 0.075 ppm based on the fourth highest 8-hour average value per year at a site, averaged over three years. Based on monitoring results from 2006 through 2008, the entire state of Wyoming is in compliance with this standard except for at a single monitor, the Boulder monitor, in Sublette County. The Wyoming Department of Environmental Quality, Air Quality Division (AQD) evaluated whether a nonattainment area should be designated due to the monitored results at the Boulder monitor. The AQD recommended that the Upper Green River Basin (UGRB) be designated as nonattainment for the 2008 ozone National Ambient Air Quality Standard (NAAQS). The AQD based this recommendation on a careful review of the circumstances surrounding the incidence of elevated ozone events. Elevated ozone in the UGRB is associated with distinct meteorological conditions. These conditions have occurred in February and March in some (but not all) of the years since monitoring stations began operation in the UGRB in 2005. The UGRB does not include any lands within the Kemmerer Field Office.

Ozone data were collected in Green River, Wyoming, from 1998 to 2001 and show background concentrations of ozone to be 93.6% of the applicable WAAQS (Table 3.1). Additional ozone monitoring at the Pinedale CASTNet site shows that concentrations of ozone there are typical of remote areas.

Particulate matter (PM) refers to the small particles (i.e., soil particles, pollen, etc.) suspended in the air that settle to the ground slowly and may be re-suspended if disturbed. Ambient air particulate matter standards are based on the size of the particle. The two types of particulate matter are:

- PM₁₀ (particles with diameters less than 10 micrometers): small enough to be inhaled and capable of causing adverse health effects.
- PM_{2.5} (particles with diameters less than 2.5 micrometers): small enough to be drawn deeply into the lungs and cause serious health problems. These particles are also the main cause of visibility impairment.

Background concentrations of PM₁₀ are 32-50% of the applicable WAAQS (Table 3.1). Other regulatory monitoring of particulate matter showed that concentrations were in compliance with applicable WAAQS.

The WDEQ-AQD monitors particulate matter throughout the State of Wyoming with the State and Local Air Monitoring System (SLAMS). Table 3.2 summarizes particulate matter concentrations in Wyoming during 2001. Annual PM₁₀ background concentrations for the MAA exceed the statewide average, while MAA PM_{2.5} concentrations fall below the statewide average.

Table 3.2: Wyoming Particulate Summary for 2001 (µg/m³).

Pollutant	Annual Background for MAA	Annual Statewide Average
PM ₁₀	33	22
PM _{2.5}	5	8

Sulfur dioxide (SO₂) and sulfates (SO₄) form during combustion from trace levels of sulfur in coal or diesel fuel. Sulfur dioxide also participates in chemical reactions and can form sulfates and sulfuric acid in the atmosphere. Background concentrations of sulfur dioxide are 2–12% of the applicable WAAQS (Table 3.1).

Sulfur dioxide concentrations typically range from 1 to 10 ppb (2.6 to 26 µg/m³) in remote areas, and from 20 to 200 ppb (52 to 520 µg/m³) in polluted areas (Seinfeld 1986). Average weekly concentrations of sulfur dioxide at the Pinedale CASTNet site are 0.3 ppb (0.8 µg/m³) and are typical of remote or unpolluted areas.

Mean annual sulfate concentrations are typically 0.6 ppb (2.5 µg/m³) or less in remote areas, and 2.5 ppb (10 µg/m³) or more in urban areas (Stern et al. 1973). Mean annual concentrations of sulfate are 0.5 ppb (2 µg/m³) at the Pinedale CASTNet site and are typical of remote or unpolluted areas.

3.1.1 Climate and Climate Change

The Kemmerer Field Office is located in a semi-arid, mid-continental climate regime typified by dry, windy conditions, limited rainfall, and long, cold winters (Trewatha and Horn 1980). Table 3.3 summarizes climate components in the area potentially affected by the potential leased parcels, based on data collected at several long-term meteorological stations located in and near the Kemmerer Field Office area.

Table 3.3: Summary of Climate (1958–2005).

Wyoming Meteorological Station	Description
Kemmerer Water Treatment Station	Mean annual temperature: 39.3 °F Mean annual precipitation: 9.78 inches Mean annual snow depth: 2 inches Mean annual snowfall: 50.9 inches
Rock Springs	Mean annual temperature: 44.1 °F Mean annual precipitation: 8.51 inches Mean annual snow depth: 1 inch Mean annual snowfall: 49.2 inches
LaBarge	Mean annual temperature: 39 °F Mean annual precipitation: 8.03 inches Mean annual snow depth: 1 inch Mean annual snowfall: 31.7 inches

Source: (Western Regional Climate Center 2006).

The region is subject to strong, gusty winds that are often accompanied by snow and blizzard conditions during winter months. Winds frequently originate from the west to northwest, and the mean annual wind speed is 9 miles per hour.

Wind strength and frequency affects dispersion of noises, odors, and transport of dust and other airborne elements. Therefore, the region’s strong winds increase the potential for atmospheric dispersion of pollutants.

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). Global mean surface temperatures have increased nearly 1.8°F from 1890 to 2006. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24°N) have exhibited temperature increases of nearly 2.1° F since 1900, with nearly a 1.8°F increase since 1970 alone. Temperature in southwestern Wyoming is expected to increase by 0.25 to 0.40 degrees Fahrenheit per decade while temperatures in surrounding locations in Utah, Wyoming, and Colorado are expected to increase by 0.40 to 1.2 degrees Fahrenheit per decade with the largest decrease expected in southwestern Wyoming (Figure 3.2). Precipitation across western Wyoming is expected to decrease by 0.1 to 0.6 inches per decade with the largest decrease expected in southwestern Wyoming (Figure 3.2).

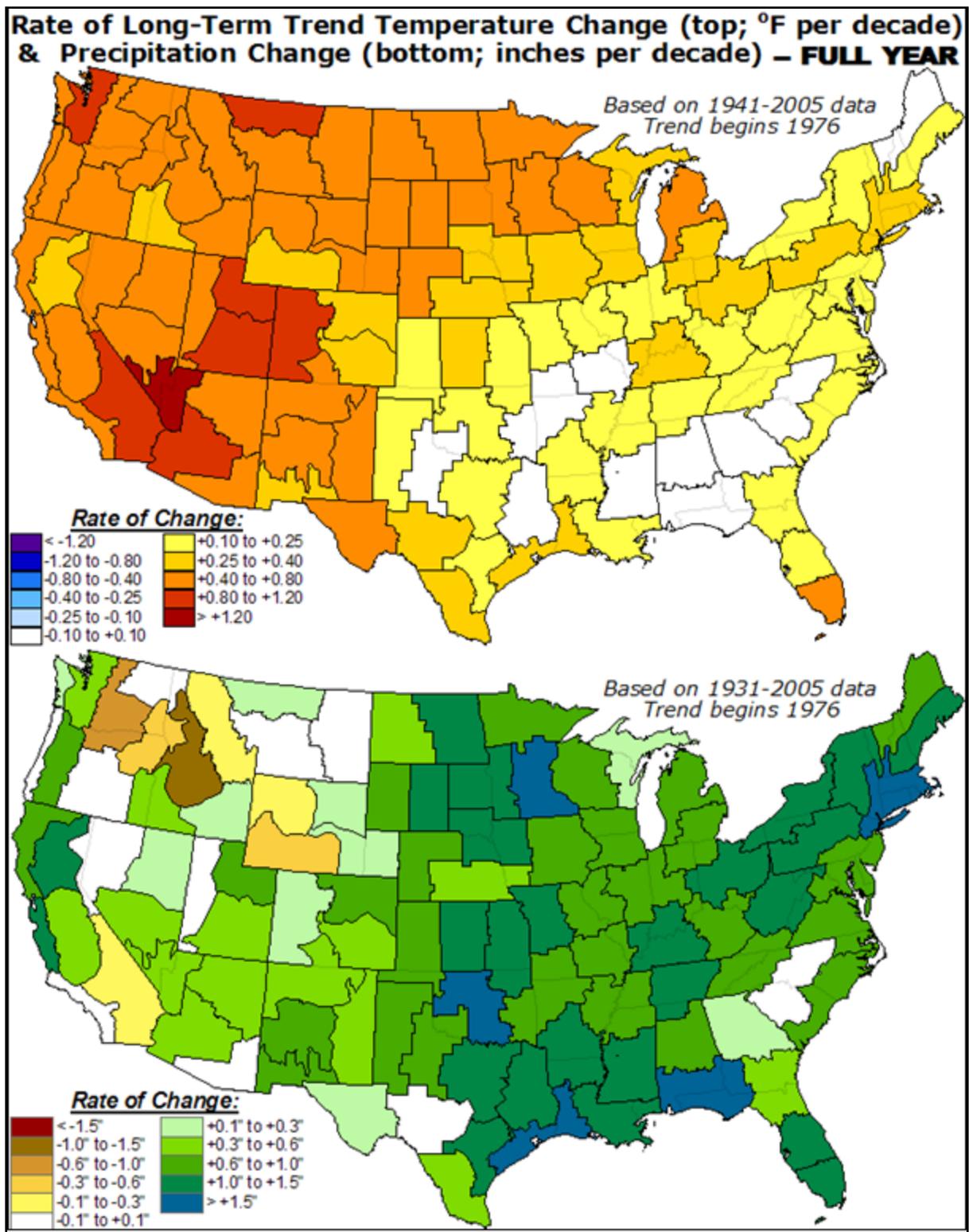


Figure 3.2: Long-term Temperature (top) and Precipitation (bottom) Trends in the United States. From NOAA Climate Prediction Center (<http://www.cpc.noaa.gov>).

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). Several activities that occur in the Kemmerer Field Office area contribute to the phenomena of climate change, including large wildfires and activities using combustion engines; changes to the natural carbon cycle; changes to radiative forces and reflectivity (albedo); and emissions of greenhouse gases (GHGs), especially carbon dioxide and methane, from fossil fuel development.

Green house gases are composed of molecules that absorb and reradiate infrared electromagnetic radiation. When present in the atmosphere the gas contributes to the greenhouse effect. 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 flourinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Flourinated gases are powerful GHGs that are emitted from a variety of industrial processes including production of refrigeration/cooling systems, foams and aerosols. Flourinated gases are not primary to the activities authorized by the BLM and will not be discussed further in this document.

Ongoing scientific research has identified the potential impacts of anthropogenic 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 carbon dioxide equivalent (CO₂e) 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 global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations" (IPCC 2007.)

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 climate change behind CO₂ (Ramanathan and Carmichael, 2008). Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

Some authorized activities within the Kemmerer Field Office generate greenhouse gas (GHG) emissions. Oil and gas development activities can generate CO₂ and NH₄ (during processing.) Carbon dioxide emissions result from the use of combustion engines for OHV and other recreational activities. Wildland fires also are a source of CO₂ and other GHG emissions, and livestock grazing is a source of methane. Other activities in the Kemmerer Field Office 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 parcels proposed for leasing is included in Section 4.

3.1.2 Visibility

The 1997 Clean Air Act (CAA) amendments declared “as a National Goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas in which impairment results from manmade air pollution.” The CAA gives federal managers the affirmative responsibility, but no regulatory authority, to protect air quality-related values, including visibility, from degradation.

PSD increments limit air quality degradation and ensure that areas with clean air continue to meet NAAQS, even during economic development. The PSD program goal is to maintain pristine air quality required to protect public health and welfare from air pollution effects and “to preserve, protect and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreation, scenic or historic value.”

PSD increments have been established for NO₂, SO₂, and PM₁₀. Comparisons of potential PM₁₀, NO₂, and SO₂ concentrations with PSD increments are intended only to evaluate a threshold of concern. The allowable PSD increment depends on an area’s classification. Class I areas have lower increments, due to their protected status as pristine areas. PSD Class I and other sensitive areas located in close proximity to the Kemmerer Field Office and the distance of each from the field office are shown on Map 3-1. Federal Class I areas are listed in Table 3.4. Several additional areas are classified as PSD Class II, where lower incremental air quality limits are imposed due to less pristine background air quality. PSD Class II areas are listed in Table 3.5.

Table 3.4: Distances and Direction to Class I Areas.

Class I Area	Distance From KFO (km)	Direction From KFO
Bridger Wilderness Area	95	North
Fitzpatrick Wilderness Area	105	North
Grand Teton National Park	170	North
Mount Zirkel Wilderness Area	261	East
Teton Wilderness Area	120	North
Washakie Wilderness Area	186	North

Table 3.5: Distances and Direction to Class II Sensitive Areas and other areas of concern in southwest Wyoming.

Sensitive Class II Areas	Distance From KFO (km)	Direction From KFO
Bridger Butte	Within	
Dinosaur National Monument ^a	125	South
Flaming Gorge National Recreation Area	Adjacent	East
Fontenelle Reservoir	Adjacent	North
Gros Ventre Wilderness	195	Northwest
Popo Agie Wilderness Area	108	Northeast
Seedskaadee National Wildlife Refuge	Adjacent	Northeast
Wind River Roadless Area	166	North

^a Class II PSD area with Special Federal Class I Increment Level Protection (SCIP) for SO₂. Annual mean concentration and the 24-hour and 3-hour maximum concentrations cannot exceed established baseline levels by more than 2 ug/m³, 5 ug/m³, and 25 ug/m³, respectively.

A wide variety of pollutants can impact visibility, including particulate matter, nitrogen dioxide, nitrates (compounds containing NO₃), and sulfates (compounds containing SO₄). Fine particles suspended in the atmosphere decrease visibility by blocking, reflecting, or absorbing light.

Two types of visible impairment can be caused by emission sources: plume impairment and regional haze. Plume impairment occurs when a section of the atmosphere becomes visible due to the contrast or color difference between a discrete pollutant plume and a viewed background, such as a landscape feature. Regional haze occurs when pollutants from widespread emission sources become mixed in the atmosphere and travel long distances.

Visibility is quantified in terms of the deciview (dv), which is defined as a change in visibility that is perceptible to the average human, and in terms of the standard visible range (SVR), which is defined as the distance that an average human can see. Visibility data are calculated for each day, ranked from cleanest to haziest, and reported into three categories:

- 20% cleanest: mean visibility for the 20% of days with the best visibility
- Average: the annual mean visibility
- 20% haziest: mean visibility for the 20% of days with the poorest visibility

Visibility data were collected in the Bridger Wilderness from 1989 to 2003. The mean annual SVR varies from 198–162 miles (or 2–4 dv) on clear days, 133–109 miles (or 6–8 dv) on average days, and 12–10 miles (or 10–12 dv) on hazy days (Figure 3.4).

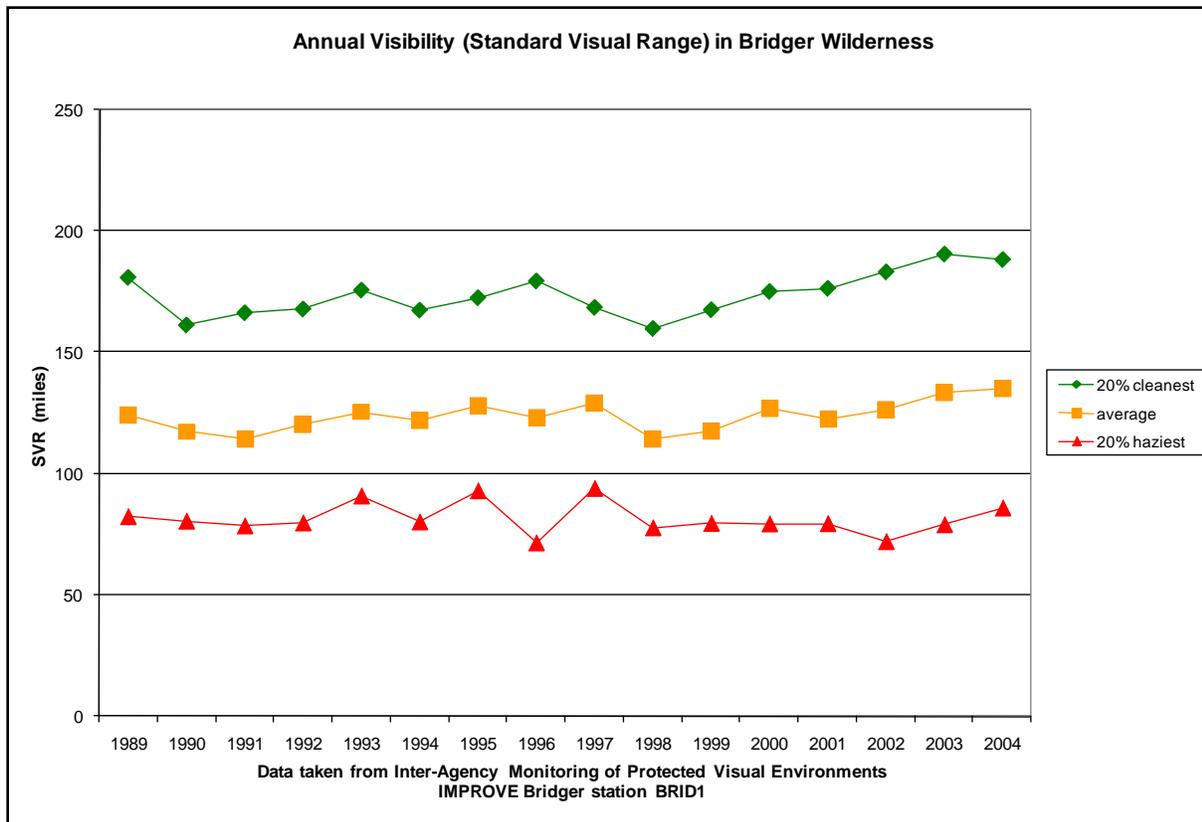


Figure 3.4: Visibility in the Bridger Wilderness.

Deposition:

Through a process called atmospheric deposition, air pollutants fall out of the atmosphere and are deposited on terrestrial and aquatic ecosystems. These pollutants are deposited via wet deposition (precipitation) and dry deposition (gravitational settling of particles and gaseous pollutants that adhere to soil, water, and vegetation). Substances deposited include:

- Acids, such as sulfuric acid and nitric acid (HNO₃) (sometimes referred to as “acid rain”)
- Air toxins, such as pesticides, herbicides, and VOCs
- Nutrients, such as nitrate and ammonium (NH₄⁺)

Deposition is reported as the mass of material deposited on an area (kilogram per hectare per year). Total deposition refers to the sum of airborne material transferred to the Earth’s surface by both wet and dry deposition.

A brief summary of current atmospheric deposition in the region is included in Table 3.6. These data represent several locations in the region, including Pinedale, Gypsum Creek, and Yellowstone National Park.

The natural acidity of rainwater is represented by pH values ranging from 5.0 to 5.6 (Seinfeld 1986). Precipitation pH values lower than 5.0 are considered acidified and may adversely affect plants and animals. A voluntary level of concern for a decrease in pH levels in rainwater has been estimated to be 0.1–0.2 (U.S. Department of Agriculture 1989).

Table 3.6: Summary of Current Atmospheric Deposition.

Deposition Component	Description
Precipitation pH	Precipitation pH demonstrates some acidification <ul style="list-style-type: none"> • Pinedale: 4.8–5.4 • Gypsum Creek: 5.0–5.4 • Yellowstone National Park: 5.2–5.6
Total nitrogen deposition	Total nitrogen deposition is less than levels of concern <ul style="list-style-type: none"> • Pinedale: 1.0–1.5 kg/ha-year
Total sulfur deposition	Total sulfur deposition is less than levels of concern <ul style="list-style-type: none"> • Pinedale: 1–2 kg/ha-year

Total deposition voluntary levels of concern have been estimated for several areas (U.S. Department of Agriculture 1989). Estimated total deposition guidelines include the “red line” (defined as the total deposition that the area can tolerate) and the “green line” (defined as the acceptable level of total deposition).

Total nitrogen deposition guidelines for the Bridger Wilderness include the red line (set at 10 kg/ha-year) and the green line (set at 3–5 kg/ha-year). Actual mean annual total nitrogen deposition ranged from below 1.5 kg/ha-year to above 3.5 kg/ha-year (Figure 3.5). Total sulfur depositions guidelines for include the green line (set at 5 kg/ha-year) and the red line (set at 20 kg/ka-year). Mean annual total sulfur deposition ranged from 1 kg/ha-year to nearly 3 kg/ha-year (Figure 3.6). For sulfur, the measured baseline deposition is well below the voluntary levels of concern (green line). For Nitrogen, some deposition levels exceed the lower limits of the green line.

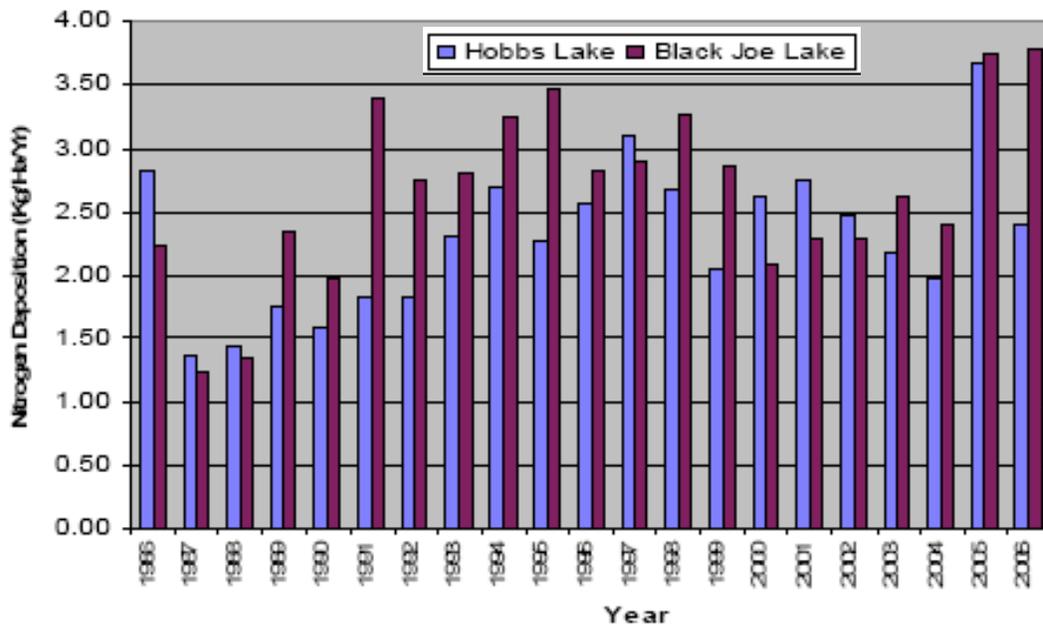


Figure 3.5: Mean Annual Nitrogen Deposition for Hobbs Lake and Black Joe Lake.

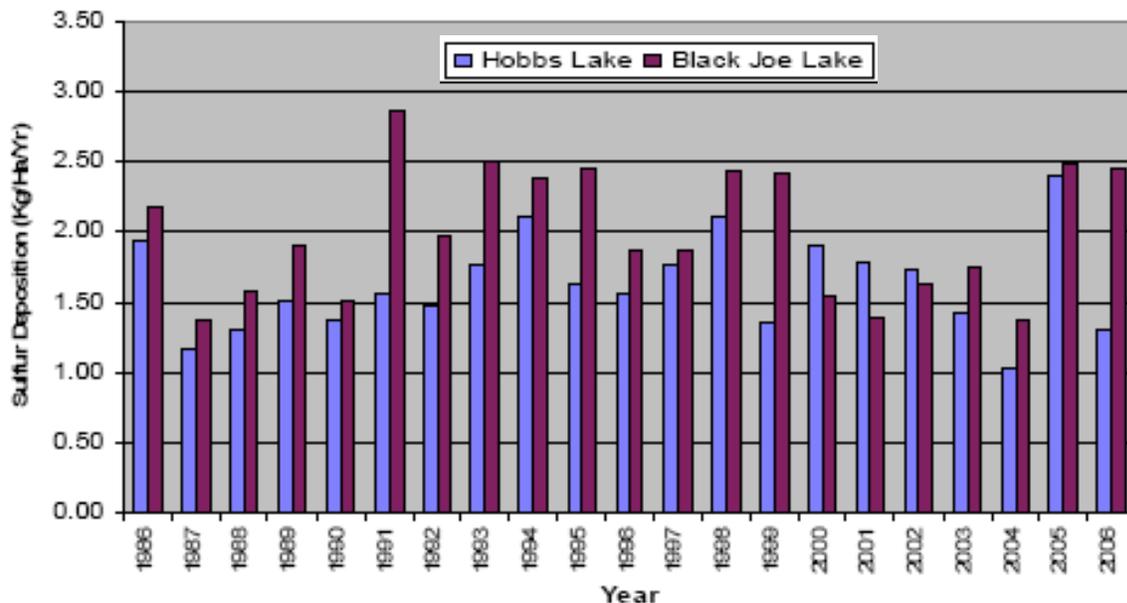


Figure 3.6: Mean Annual Sulfur Deposition for Hobbs Lake and Black Joe Lake.

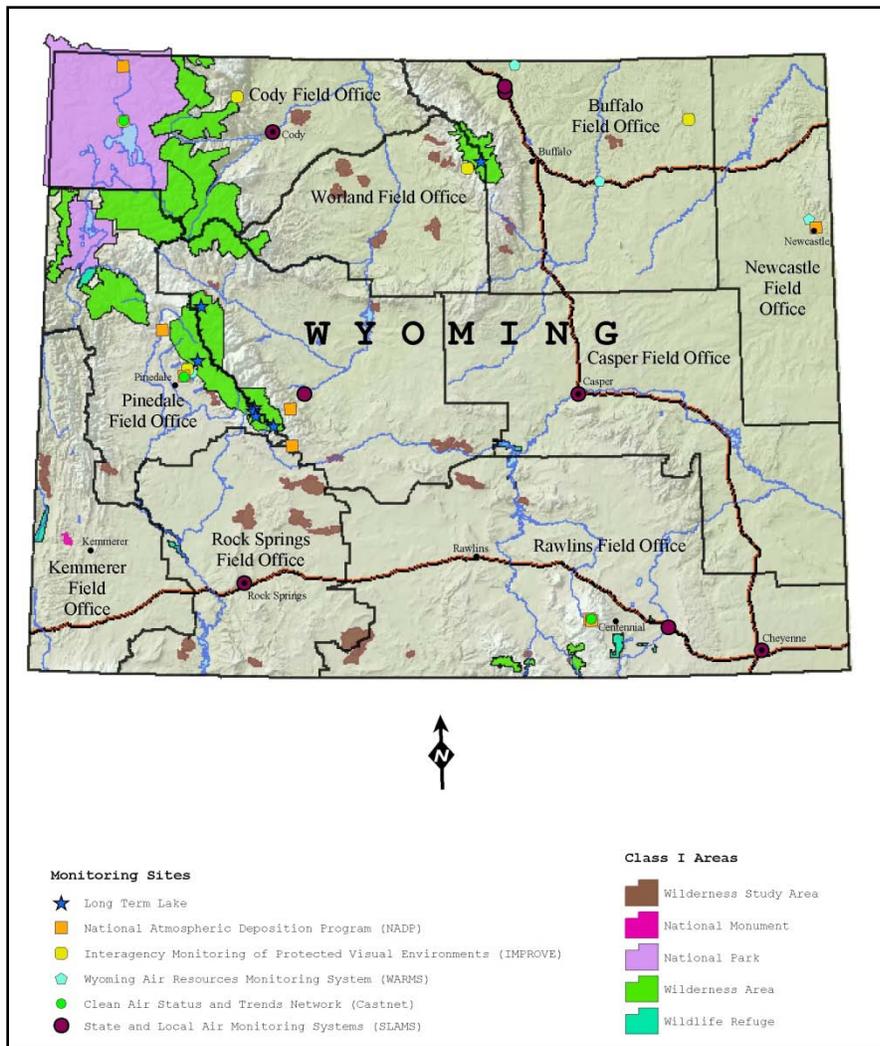
Atmospheric deposition of nitrogen and sulfur compounds can cause acidification of lakes and streams. One expression of lake acidification is a change in acid neutralizing capacity (ANC), which is a lake’s ability to resist acidification from atmospheric deposition. ANC is expressed in units of micro-equivalents per liter ($\mu\text{eq/l}$). Lakes with ANC values of 25 to 100 $\mu\text{eq/l}$ are considered to be sensitive to atmospheric deposition; lakes with ANC values of 10 to 25 $\mu\text{eq/l}$ are considered to be very sensitive; and lakes with ANC values of less than 10 are considered to be extremely sensitive. Table 3.7 summarizes distances and direction from the KFO to sensitive lakes in the region.

Table 3.7: Distance and Direction to Sensitive Lakes.

Sensitive Lake Receptors	Distance From KFO (km)	Direction from KFO
Black Joe Lake, Bridger Wilderness Area	142	North
Deep Lake, Bridger Wilderness Area	139	North
Hobbs Lake, Bridger Wilderness Area	156	North
Lazy Boy Lake, Bridger Wilderness Area	188	North
Upper Frozen Lake, Bridger Wilderness Area	137	North
Ross Lake, Fitzpatrick Wilderness Area	194	North
Lower Saddlebag Lake, Popo Agie Wilderness Area.	140	North

Site-specific lake water chemistry background data (pH, acid neutralizing capacity - ANC, total bulk deposition of nitrate, sulfate etc.) have been collected by the USFS in several high mountain lakes in the nearby Wilderness Areas. Lakes considered sensitive to acid deposition for which background data were collected are shown on Map 3.2. Deposition data – total nitrogen and sulfur, nitrate and sulfate – from 1986 through 2006 are shown below.

Lake acidification is measured in terms of change in ANC, which is the lake’s buffering capacity to resist acidification from atmospheric deposition of acid compounds such as sulfates and nitrates. Measured background ANC data for USFS identified sensitive lakes within the modeling domain are provided in Table 3.8. The 10th percentile lowest ANC values were calculated for each lake, following procedures provided by the U.S. Forest Service (USFS). The ANC values proposed for use in this analysis, and the number of samples used in the calculation of the 10th percentile lowest ANC values, are provided in Table 3.8.



Map 3.1: Air Quality Monitoring Stations in Wyoming.

Table 3.8: Background Acid Neutralizing Capacity Values for Acid Sensitive Lakes.

Lake	Wilderness Area	10th Percentile Lowest ANC Value ($\mu\text{eq/l}$)	Number of Samples	Sensitivity
Black Joe	Bridger	67.1	67	Sensitive
Deep	Bridger	59.7	64	Sensitive
Hobbs	Bridger	69.9	71	Sensitive
Lazy Boy	Bridger	10.8	3	Extremely Sensitive
Upper Frozen	Bridger	6.0	8	Extremely Sensitive
Ross	Fitzpatrick	60.4	33	Sensitive
Lower Saddlebag	Popo Agie	54.2	32	Sensitive

The USFS considers lakes with ANC values greater than 25 microequivalents per liter ($\mu\text{eq/l}$) to be sensitive to atmospheric deposition and lakes with ANC values less than or equal to 25 $\mu\text{eq/l}$ are considered extremely sensitive. Of the lakes for which data is presented in Table 3.8, Upper Frozen and Lazy Boy lakes are considered extremely acid sensitive.

The USFS has identified a specific methodology to determine acceptable changes in ANC, which are used to evaluate potential air quality impacts from deposition at acid sensitive lakes. The USFS has established a level of acceptable change (LAC) of no greater than a 1 $\mu\text{eq/l}$ change in ANC (from human causes) for lakes with existing ANC levels less than or equal to 25 $\mu\text{eq/l}$. A limit of 10 percent change in ANC reduction was adopted for lakes with an ANC greater than 25 $\mu\text{eq/l}$.

3.2 Wildlife – Special Status Species:

Section 7 of the Endangered Species Act (ESA) of 1973 (as amended), requires BLM land managers to ensure that any action authorized, funded, or carried out by the BLM is not likely to jeopardize the continued existence of any threatened or endangered species and that it avoids any appreciable reduction in the likelihood of recovery of affected species. Consultation is required on any action proposed by the BLM or another federal agency that affects a federally listed species or that jeopardizes or modifies critical habitat.

Special Status Species include those species which are: 1) federally listed as threatened or endangered, are candidates for federal listing as threatened or endangered, or species proposed for listing under the provisions of the ESA; 2) species listed by a state in a category such as threatened or endangered implying potential endangerment or extinction; 3) those designated by each State Director as sensitive. The BLM’s Special Status Species Policy outlined in BLM Manual 6840 (Special Status Species Management) and Wyoming Instruction Memorandum (WY-IM-2010-027; Update of the Bureau of Land Management, Wyoming, Sensitive Species List – 2010) is to conserve listed species and the ecosystems on which they depend and to ensure

that actions authorized or carried out by BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any of these species. The BLM's policy is intended to ensure the survival of those species that are rare or uncommon, either because they are restricted to specific uncommon habitat or because they may be in jeopardy due to human or other actions. By BLM policy, species proposed for federal listing are to be managed with the same level of protection provided for threatened and endangered species. The authority for this policy and guidance comes from the Endangered Species Act of 1973, as amended; Title II of the Sikes Act, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; and Department of Interior Manual 235.1.1A, Departmental Manual 632.1.1-1.6, Secretarial Order 3206.

The Final Environmental Impact Statement for the Kemmerer Field Office (August 2008) evaluated the need to protect habitat necessary for the success of species identified in regulations and policies. New information regarding the status of the greater sage-grouse has elevated its status from a BLM sensitive species to a federal candidate species. Policy was issued by the Wyoming BLM in December 2009, under Instruction Memoranda WY-2010-012 (Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands including the Federal Mineral Estate) and WY-2010-013 (Oil and Gas Lease Screen for Greater Sage-Grouse); additional policy was issued by the Washington Office BLM under Instruction Memorandum WO-2010-071 (Gunnison and Greater Sage-Grouse Management Considerations for Energy Development (Supplement to *National Sage-Grouse Habitat Conservation Strategy*)).

Due to WY-IM-2010-012 and WY-IM-2010-013 the BLM is currently amending 6 RMPs across the state. These RMP amendments will provide for public input during scoping. The goal of the RMP amendments is to have a plan state-wide that is consistent with Order 2008-2, the IMs and to have stipulations match across field office boundaries in order to avoid a potential ESA listing of the sage-grouse. The Kemmerer RMP is one of the six documents to be amended.

The greater sage-grouse is a candidate species for listing under provisions of the ESA as determined by the USFWS and documented in a March 5, 2010 Federal Register notice declaring that listing of the greater sage-grouse was warranted but precluded. Greater sage-grouse are distributed in sagebrush habitat throughout the KFO. Habitat fragmentation and degradation occurs within the field office due to existing development, past habitat and vegetation management, and urban encroachment. It is unknown the exact extent or location of habitat degradation within the field office. There are several factors that could lead to degradation and fragmentation including, but not limited to, catastrophic wildfires, invasive non-native species and minerals development. Greater sage-grouse leks are generally at mid elevations within sagebrush habitat. Greater sage-grouse hens show fidelity for nesting areas (RPM FEIS, Chapter 4, pg. 4-135) and will nest at various distances from the lek. Research indicates that the average distance between nests and the nearest leks varies from 1.1 to 6.2 km (0.68 to 3.85 mi, respectively). However, nests may be located over 20 km (12.4 mi) from a lek. Due to this variability in nesting distance from a lek, fragmentation and degradation of suitable sagebrush habitats could limit the distribution and abundance of greater sage-grouse. The Wyoming Game and Fish Department (WGFD) has identified core areas, which represent these relatively productive areas, and has suggested special management for these areas.

There are many sources of habitat fragmentation, all of which may affect the greater sage-grouse. Industrial development, livestock and wildlife grazing, mining, gravel pit operations, oil and gas activity, land exchanges and disposal, vegetation manipulation, fuel reduction projects and other activities may cause an artificial component to a natural habitat condition. Structures such as powerlines and towers and industrial disruptive activities may cause avoidance and abandonment of habitat. Livestock grazing, fuels treatments, and weed spread infestations are factors which may cause habitat degradation depending upon severity, intensity, and design. West Nile virus (WNV), which recently has had lethal effects on greater sage-grouse in parts of Wyoming, could become an important factor in greater sage-grouse survival. However, WNV has not been documented in the KFO. However, the potential does exist for the virus to occur with the field office due to water impoundments, reservoirs, stock tanks or other features that would create an environment suitable for mosquito larva to persist.

Greater sage-grouse have been declining across the west, which has prompted several petitions to list them as threatened under the ESA, including a recent petition that led to the March 5, 2010 finding by the USFWS of warranted for listing but precluded. Population levels throughout the Planning Area declined during the mid 1990s. At this time BLM is unable to determine the exact reason for the decline; however, climate (i.e. drought conditions) may have played an important role. The KFO has experienced mild winters, compared to normal, coupled with mild temperatures and rains in the spring the past few years. The warmer temperatures with less snow during the winter potentially reduced mortality rates. Warmer temperatures and rains during the spring may have allowed the hens to incubate the eggs continuously, rather than abandoning the nest during heavy spring snow storms. A hen may try to re-nest if the first nest is abandon, but the success of that nest and any young that hatch is reduced. At this time, it is unknown if populations are increasing, decreasing or remain steady within the KFO. Lek survey data collected by the WGFD over the next several years will provide data that will help answer questions about population status.

Although it is unknown if populations are increasing, current research within the Wyoming Game and Fish Department identified core areas for greater sage-grouse has shown that the level of established and productive leks has increased within these designated core areas. Also, it should be noted that winter flights for sage-grouse showed an increase in species presence within the designated core areas. It is believed that the low level of current habitat fragmentation and degradation within these areas has allowed the presence of sage-grouse to be significantly productive.

The areas proposed for leasing are located within the eco-regions of the Southern Rocky Mountain and the Intermountain Semi-desert provinces (RMP FEIS, pp. 3-59). The convergence of these zones results in a diversity of vegetative types. The vegetation zones within the KFO are mostly foothills scrub zone dominated by sagebrush, with timbered mountain slopes, some desert and basin zones, river bottoms and limited alpine zones. These provide a broad range of diverse habitat types supporting the assemblages of species that live within the area. More information on wildlife habitat within the KFO can be found in the RMP FEIS (Chapter 3, pp. 3-45 through 3-61).

4.0 ENVIRONMENTAL IMPACTS

4.1 Air Resources:

Alternative A: No Action:

Under the no action alternative, the parcels would not be recommended for sale, and no development would occur. Due to demand for oil and gas, it is expected that the parcels may be re-nominated in the future; consistent with appropriate land use planning decisions, and may be offered for sale with appropriate 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 have been authorized under the current parcels would still be permitted under future potential 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 parcels offered 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.

A decision to not offer the parcels for lease would support continued current uses of these lands. The uses are primarily livestock grazing, with some dispersed recreation such as hunting and hiking. These uses typically entail vehicle travel for access, and would be expected to continue at current rates.

Alternative B: Proposed Action Offer Parcels for Lease:

Offering the parcels and 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. Any proposed development project would be subject to additional analysis of possible air effects before approval. The analysis may include air quality modeling for the activity. Over the last 10 years, the leasing of Federal oil and gas mineral estate in the Kemmerer Field Office has resulted in an average total of 32 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.

In October 2006, the BLM produced a Reasonably Foreseeable Development Scenario (RFD) document for the Kemmerer Field Office RMP revision. This document estimated that approximately 100 wells would be drilled annually for Federal minerals. Most conventional petroleum occurrence occurs in the eastern portion of the planning area in the Green River/Moxa Arch Basin. Future production of undiscovered petroleum reserves could be possible from continuous gas and conventional gas from the Mowry Shale, Mesaverde Group/Lance/Fort Union formations. In addition, the Fort Union Formation has the potential for CBNG development. The Green River and Wasatch formations could have undiscovered continuous gas potential. 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 in a development scenario as a result of leasing the parcels. 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 accurate yet slightly over-estimate the average as from October 1999 through September 30, 2009 the Kemmerer Field Office has approved 431 APDs, or an average of 43 APDs per year.

Coalbed methane development does not currently exist within the field office and, therefore, there are no expected emissions from this source due to the lack of interest by Kemmerer Operators. The RFD does predict the possibility of up to 32 coalbed methane wells could be drilled annually within the Kemmerer planning area over the next 20 years.

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.

Under this alternative, the parcels would be recommended for leasing with appropriate site-specific stipulations. Under this Alternative, due to the larger acreage potentially subject to surface disturbing activities, drilling and production, the potential for impacts are larger than those identified under Alternative A.

Mitigation

None

4.2 Greenhouse Gas Emissions

Alternative A: No Action

A decision to not recommend the parcels for inclusion in the lease sale would preclude oil and gas development that could contribute to greenhouse gas emissions. However, as discussed previously under the no action alternative, this would not preclude future nomination, leasing, and development consistent with land use planning decisions at that time. Based on demand for oil and gas, it is expected that these parcels would be nominated in the future, consistent with appropriate land use planning decisions, and would be offered for sale with appropriate

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 have been authorized under the potential leasing scenario would still be permitted under future leases. This would result in a postponement of development, and the possibility of the development occurring with increased restriction on greenhouse gas emissions. The levels and types of restrictions would be determined at the time of lease, and submittal of development activities for approval, but are expected to allow for at least moderate development of areas open to leasing. Therefore, the no-action alternative would likely delay, and not prevent, greenhouse gas emissions. The no-action alternative may also result in reduced levels of emissions associated with future expanded restrictions.

See Section 4.6 for a discussion of the impacts of these potential greenhouse gas emissions on global climate change.

Alternative B: Proposed Action Offer Parcels for Lease

The leasing of parcels alone 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 can be made: issuing the proposed tracts is likely to result in additional wells drilled for exploration and development of the gas/oil resource.

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. As of 2008, the Inventory indicates that there over 33,000 oil and gas wells in the State.

Wyoming's gross GHG emissions are expected to continue to grow to 69 MMtCO₂e by 2020, 56% above 1990 levels. 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 900 existing Federal oil and gas wells in the Kemmerer Field Office, which account for approximately 2.7 percent of the total Federal wells in Wyoming. Therefore, GHG emissions from all wells within the field office amount to approximately 0.53 metric tons annually (mt) (19.6 mt X 0.027 = 0.53 mt).

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.

Of the proposed parcels, both parcels are located within an area defined as having Low Potential for Oil and Gas development in the 2006 Final Reasonable Foreseeable Development (RFD) Scenario for Oil and Gas produced by the BLM Kemmerer Field Office for the Kemmerer RMP revision process. Parcels within high to moderate potential areas are more likely to have future wells drilled than those in low potential areas.

See Section 4.4 for a discussion of the impacts of these potential greenhouse gas emissions on global climate change.

Mitigation

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 Kemmerer 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.

4.3 Wildlife – Special Status Species:

Alternative A: No Action

Under the No Action Alternative, the proposed parcels would not be leased. There would be no new impacts from oil and gas production on the parcel lands. Oil and gas development of federal, state, private, and Indian minerals would continue on the lands surrounding the parcels. Under the no action alternative, the parcels would not be recommended for sale, and no development would occur. Due to demand for oil and gas, it is expected that the parcels may be re-nominated in the future; consistent with appropriate land use planning decisions, and may be offered for sale with appropriate 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 have been authorized under the current parcels would still be permitted under future potential 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 impacts to threatened, endangered and special status species. A decision to not issue leases for any of the parcels would support continued current uses of these parcels. These uses are primarily associated with grazing, with some dispersed recreation such as hunting and hiking. These uses typically entail motor vehicle travel for access, and would be expected to continue at current rates.

Alternative B: Proposed Action

The act of leasing parcels would, by itself, have no impact on any resources in the area administrated by the KFO Field Office. Standard terms and conditions as well as special stipulations would apply to the lease parcels.

The proposed lease sale parcels are located within areas which provide habitat for a variety of wildlife, fish and plant species, including special status species (SSS). All impacts would link to as yet undetermined future levels of lease development. Impacts from future development associated with the sale of the proposed lease parcels may result in further habitat degradation and fragmentation, which may force a decreased use of or complete abandonment of otherwise suitable habitat. Based on existing available information, leasing of the parcels may have adverse affects on listed and/or special status species habitats.

WY-IM-2010-012 directs the BLM to analyze “an alternative that limits development to one disturbance location per 640 acres within the State’s Core Areas to coincide with the Governor’s Executive Order (EO, Order 2008-2). The one location and cumulative value of existing disturbance in the area will not exceed five percent (5%) of sagebrush habitat within those same 640 acres.” WY-IM-2010-013 directs the BLM to screen each parcel for sage-grouse core areas. If the parcel is within “core” then the BLM is to indentify if grouse habitat is involved. Under step two of the screen it is assumed that if the parcel is within “core” then there is associated habitat. Step three is to identify if the parcel is within eleven square miles (11 mi²) of contiguous, manageable, unleased federal minerals. If the parcel is with this 11 mi², then the BLM’s Reservoir Management Group (RMG) is contacted to identify any potential fluid mineral drainage concerns. If there are not any drainage concerns then the parcel is recommended for deferral from leasing. The parcels are recommended for deferral only, due to the fact that final decision to defer or lease is made by the BLM Wyoming State Director or designee. The sage-grouse screening process would continue until the RMP amendments are completed, at a minimum. At this time, KFO does not have any parcels that meet the sage-grouse screen criteria as reflected in Appendix B (WY-IM-2010-013). Note that Appendix B does not include any of the “unavailable” parcels as described in section 1.2. Therefore, KFO recommends full issuance of the lease parcels.

Potential impacts of development could include increased habitat disruption, degradation and fragmentation associated with the construction of new well pads, pipelines or roads. Increased noise and human presence during drilling or production activities could also occur. The amount of potential impact 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. During development on of the proposed leases, a site-specific biological resource survey would be required at the APD stage. Typically this is conducted by BLM biologists. When SSS are identified, coordination with the WGFD and potentially consultation with the United States Fish and Wildlife Service (USFWS) could be required under Section 7 of the ESA.

Mitigation

Although impacts to threatened and endangered (T&E) and SSS cannot be fully analyzed at this point, lease notices and stipulations would be attached to the leases for purposes of mitigating anticipated impacts to these resources (Appendix A). There are no known existing T&E or SSS

plant species within the lease parcels. However, habitat for these species may exist within the parcel. During the more detailed environmental analysis for an APD, biological surveys may find a previously undocumented T&E or SSS plant population. Current status on endemic or sensitive plants may change through time, elevating concerns for them, and their listing with the USFWS. Any time SSS species are identified during the APD stage of development, projects would be moved and the appropriate mitigation measures and best management practices (BMPs) would be used to minimize impacts to the species.

4.4 Cumulative Impacts:

There are approximately 900 Federal producing wells in the Kemmerer 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 Kemmerer Field Office is presented in the 2010 Kemmerer Resource Management Plan (RMP). 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.

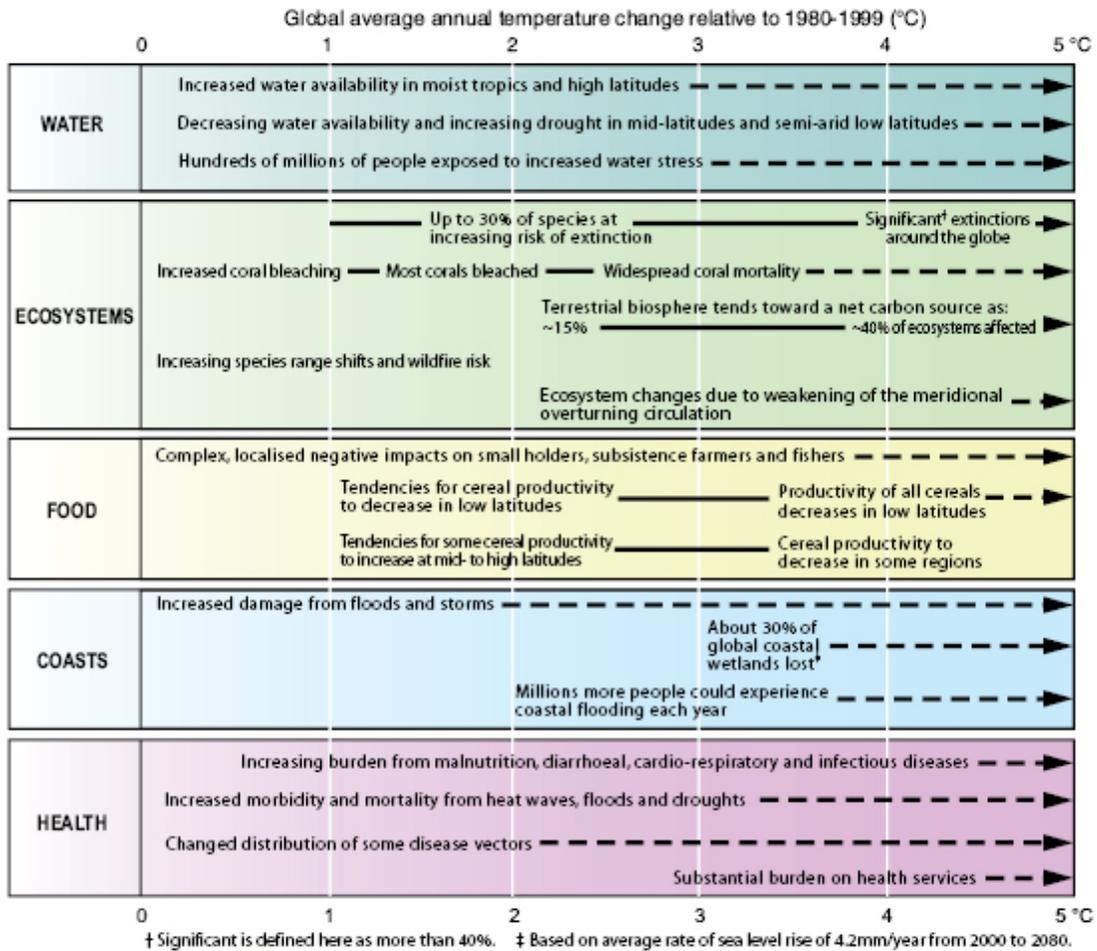
As described in the analysis of environmental consequences, the proposed action and/or the alternative may contribute to the effects of climate change to some extent through GHG emissions. However, it is not currently possible to associate any of these particular actions with the creation of any specific 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. 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.

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.

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 3.3, taken from the Fourth Assessment Report indicates varying responses of the natural world to increasing temperatures as a result of increasing global temperatures.

Figure 3.3: Examples of impacts associated with global average temperature change (Impacts will vary by extent of adaptation, rate of temperature change and socio-economic pathway)



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.

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.

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.

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 (See Section 4.2), an RFD of 100 wells drilled and produced per year would result in approximately 0.059 mt of CO₂e, potentially being added to the current levels associated with oil and gas development in the Kemmerer 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 higher methane content, may emit greenhouse gas emissions at a higher or lower level than convention oil and gas wells.

The Kemmerer Field Office is currently analyzing an infill drilling no proposal for the Moxa Arch development area. The impacts of the Moxa project's contributions to GHG emissions are to be further analyzed in the upcoming supplemental EIS for this project. There are no other proposed energy projects that could further contribute to GHG emissions.

5.0 DESCRIPTION OF MITIGATING MEASURES AND RESIDUAL IMPACTS

The issuance of those leases identified under the proposed action will be mitigated by attaching appropriate conditions of approval to any subsequent requests for lease development either on a case by case basis or upon receipt of a multi-well project proposal. The Kemmerer Field Office, Surface Use and Occupancy Requirements, Conditions of Approval, and the Kemmerer Field Office's Special Leasing Stipulations, which are in place at the Wyoming State Office, will provide adequate mitigation for issuance of all lease parcels under the Proposed Action.

Direct, indirect, cumulative and residual impacts of leasing and lease development are generally described in the Kemmerer Approved Resource Management Plan and Record of Decision, May 2010. An environmental analysis will be prepared on a case-by-case basis upon receipt of future subsequent actions.

6.0 CONSULTATION/COORDINATION

Kemmerer Field Office BLM Staff
Gary McNaughton, Geologist
Michele Easley, Assistant Field Manager for Renewable Resources
Erik Norelius, Wildlife Biologist
Dan Oles, Forester
Lynn Harrell, Archeologist

7.0 REFERENCES

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U.S. Department of the Interior, Bureau of Land Management. 2008. Kemmerer Proposed Resource Management Plan and Final Environmental Impact Statement.

U.S. Department of the Interior, Bureau of Land Management. 2010. Kemmerer Approved Resource Management Plan and Record of Decision. Kemmerer, Wyoming.

7.1 Authorities:

Code of Federal Regulations (CFR) 3100

40 CFR All Parts and Sections inclusive Protection of Environment, Revised as of July 1, 2001.

43 CFR, All Parts and Sections inclusive - Public Lands: Interior. Revised as of October 1, 2000.

U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). 2001. The Federal Land Policy and Management Act, as amended. Public Law 94-579.

APPENDIX A

Lease Parcels

WY-1011-176 80.000 Acres
T.0210N, R.1190W, 06th PM, WY
Sec. 017 SWSW,SESE;

Lincoln County

Kemmerer FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Mar 15 to Jul 15; (2) as mapped on the Kemmerer Field Office GIS database; (3) protecting nesting greater sage-grouse.

TLS (1) Nov 15 to Apr 30; (2) as mapped on the Kemmerer 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 Kemmerer Field Office GIS database; (3) protecting *Centrocercus urophasianus* (greater sage-grouse).

WY-1011-180 320.000 Acres
T.0150N, R.1210W, 06th PM, WY
Sec. 011 E2;

Uinta County

Kemmerer FO

Formerly Lease No.

Stipulations:

Lease Notice No. 1

Lease Notice No. 2

Lease Notice No. 3

Special Lease Stipulation

TLS (1) Mar 15 to Jul 15; (2) as mapped on the Kemmerer Field Office GIS database; (3) protecting nesting greater sage-grouse.

CSU (1) Surface occupancy or use within 1/4 mile of a greater sage-grouse strutting/dancing ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Kemmerer Field Office GIS database; (3) protecting greater sage-grouse breeding habitat.

CSU (1) Human activity within 1/4 mile of an occupied greater sage-grouse lek will be restricted or prohibited between 8 p.m. and 8 a.m. from March 1 through May 15 unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Kemmerer Field Office GIS database; (3) protecting occupied greater sage-grouse leks.

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 Kemmerer Field Office GIS database; (3) protecting *Centrocercus urophasianus* (greater sage-grouse).

APPENDIX B

Greater Sage-Grouse Screen

Sage-grouse Screen for Oil & Gas Lease Parcels						
Parcel #	Core Area (Yes/No)	Habitat (Yes/No)	11 sq. mi. Manageable fed. land (Yes/No)	Drainage (Yes/No)	Defer Parcel (Yes/No)	Lease w/Lease Notice #3 (Yes/No)
176	YES	YES	YES	NO	Lease only T21N, R119W, Sec 17, SWSW and SESE	YES – only Sec 17
180	NO	YES	NO	NO	NO	YES

APPENDIX C

Wilderness Screen

Wilderness Review Checklist for Oil and Gas Lease Parcels

Sec. 603 (43 USC 1782). The Wilderness Act states:

“A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.”

Lease Parcel	More than 5000 of roadless land¹ (yes/no)	Imprint of man's work substantially unnoticeable² (yes/no)	Outstanding opportunity for solitude or primitive recreation (yes/no)	Contains natural features of scientific, educational, scenic, or historical value (yes/no)	In Citizen Proposed Wilderness Area (yes/no. If yes but dropped during RMP process, state why)
WY-1011-176	No	No	No	No	No
WY-1011-180	No	No	No	No	No