United States Department of the Interior
Bureau of Land Management

Environmental Assessment
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High Plains District Portion of the February 2015 Lease Sale

High Plains District Office
2987 Prospector Drive
Casper, Wyoming 82604
(307) 261-7600
(307) 261-7587 fax

Chapter 1

1.1 Introduction

This environmental assessment (EA) has been prepared to disclose and analyze the environmental consequences beyond those already addressed in the Buffalo, Casper, and Newcastle Field Offices' Resource Management Plans (RMP) (October 1985, December 2007 and September 2000, respectively, and their amendments) and to address new information and policy for the Bureau of Land Management's (BLM) High Plains District (HPD) portion of the February 2015 Competitive Oil and Gas Lease Sale of which 197 parcels were nominated for leasing within the HPD.

EAs assist the BLM in project planning and compliance with the National Environmental Policy Act of 1969 (NEPA), as amended (Public Law 91-190, 42 U.S.C. 4321 *et seq*.). EAs also assist the authorized officer in making an informed determination as to whether any significant impacts could result from the analyzed actions. Significance is defined by the Council on Environmental Quality and is found in 40 CFR 1508.27.

An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or to support a "Finding of No Significant Impact" (FONSI). If the decision maker determines that this project has significant impacts following the analysis in the EA, then an EIS would be prepared for the project. A FONSI documents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects). When a FONSI statement is reached, a Decision Record (DR) may be signed approving the selected alternative which could be the proposed action, another alternative, or a combination thereof.

1.2 Background

The BLM's policy derived from various laws, including the Mineral Leasing Act of 1920 (MLA), as amended [30 U.S.C. 181 *et seq*.] and the Federal Land Policy and Management Act of 1976 (FLPMA), as amended [43 U.S.C. 1701 *et seq*.], is to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

As required under the MLA, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), 43 CFR 3120.1-2(a), and BLM Instruction Memorandum 2010-117, the BLM Wyoming State Office (WSO) conducts a quarterly competitive lease sale to sell available oil and gas lease parcels. A Notice of Competitive Lease Sale listing parcels to be offered at the auction is published by the WSO in local newspapers at least 90 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 the BLM in consultation with the appropriate surface management agency or the private surface owner.

As part of the February 2015 lease sale preparation process the WSO submitted the preliminary parcel list to the HPD which included the Buffalo Field Office (Buffalo FO), Casper Field Office (Casper FO) and the Newcastle Field Office (Newcastle FO) for review and processing.

The respective Field Office (FO) staffs, in coordination and consultation with the HPD staff, reviewed the parcels to determine if they are in areas open to leasing. Each FO made recommendations to the HPD. These recommendations were reviewed, and where appropriate, stipulations were included or additional stipulations added; determined if new information is available since the land use plan was approved; determined if appropriate consultations have been conducted or if additional consultations are needed; and if there were special resource conditions of which potential bidders should be made aware. This single comprehensive EA was prepared by the HPD to document this review, as well as to disclose the affected environment, the anticipated impacts, the mitigation of impacts, and the recommended lease parcel disposition for all field offices. This EA will be available to the public for review for 30 days. Substantive comments and responses to those comments will be found in Appendix F of this document. Public comments will be reviewed and taken into consideration in the completion of the final EA. A Notice of Competitive Lease Sale listing parcels with stipulations to be offered at the auction will be made available to the public at least 90 days before the auction is held.

This EA documents the HPD, Buffalo FO, Casper FO, and Newcastle FO review of 197 parcels nominated for the February 2015 lease sale, containing 236,478 Federal mineral acres and 44,735 Federal surface acres as depicted in Table 1.1 below.

Table 1.1 Federal Mineral Acres & Federal Surface Acres

Field Office	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Buffalo FO	20	18,127	672
Casper FO	24	12,264	1,200
Newcastle FO	153	206,087	42,863
Total	197*	236,478	44,735

* One Parcel WY-1502-101 is in BFO and NFO; one Parcel WY-1502 is in BFO and CFO. Parcels crossing FO jurisdiction lines are reviewed by both FOs, and represented on both FO Lease Lists.

Therefore, 197 parcels, representing 236,478 Federal mineral acres and 44,735 Federal surface acres, are open to leasing.

As part of the February 2015 lease sale preparation process, the WSO conducted screening for Greater Sage-grouse per BLM WY guidance (IM WY-2012-019), and consistent with national policy. The parcels meeting criteria for core habitat and manageability using the Fluid Mineral Leasing Screen were identified for deferral on this basis. Deferred parcel areas will remain deferred from leasing until Greater Sage-grouse habitat conservation measures can be evaluated in the current RMP amendments and revisions. At the discretion of the State Director, parcels within core areas that contain less than 640 acres are deferred as well. As a result, 32 entire parcels and 36 partial parcels totaling 46,741.52 Federal mineral acres are deferred from lease offering at this time and are not further analyzed (Table 1.2 below). Results of the WSO Greater Sage-grouse screen as well as legal descriptions of deferred acreages are located by parcel

number in Appendix A, WSO Greater Sage-grouse Parcel Review, and in FO Lease Lists located in Appendix C.

Table 1.2 BLM Wyoming State Office Deferrals due to Greater Sage-grouse Concerns

Parcel #	Deferral	FO	Acres	Parcel #	Deferral	FO	Acres
WY-1502-041	Defer All	NFO	2399.37	WY-1502-126	Defer All	NFO	960.00
WY-1502-042	Defer All	NFO	200.00	WY-1502-127	Defer All	NFO	2080.09
WY-1502-043	Defer All	NFO	560.00	WY-1502-128	Defer All	NFO	1399.80
WY-1502-044	Partial Deferral	NFO	320.00	WY-1502-129	Defer All	NFO	482.08
WY-1502-046	Partial Deferral	NFO	80.00	WY-1502-135	Partial Deferral	CFO	320.00
WY-1502-051	Partial Deferral	NFO	40.00	WY-1502-137	Partial Deferral	CFO	560.00
WY-1502-052	Defer All	NFO	277.92	WY-1502-139	Defer All	NFO	80.00
WY-1502-053	Defer All	NFO	320.00	WY-1502-144	Partial Deferral	NFO	80.00
WY-1502-054	Defer All	NFO	160.00	WY-1502-146	Partial Deferral	NFO	198.49
WY-1502-059	Partial Deferral	NFO	80.00	WY-1502-155	Partial Deferral	NFO	42.79
WY-1502-062	Defer All	NFO	200.00	WY-1502-157	Defer All	NFO	2217.54
WY-1502-063	Defer All	NFO	160.00	WY-1502-158	Partial Deferral	NFO	440.00
WY-1502-074	Partial Deferral	NFO	40.00	WY-1502-159	Partial Deferral	NFO	149.41
WY-1502-079	Partial Deferral	NFO	479.76	WY-1502-160	Defer All	NFO	615.55
WY-1502-080	Partial Deferral	NFO	760.00	WY-1502-161	Partial Deferral	NFO	1007.18
WY-1502-090	Partial Deferral	NFO	1440.96	WY-1502-162	Partial Deferral	NFO	976.98
WY-1502-091	Partial Deferral	NFO	1080.00	WY-1502-163	Defer All	NFO	702.42
WY-1502-092	Partial Deferral	NFO	1686.27	WY-1502-164	Defer All	CFO	80.00
WY-1502-093	Partial Deferral	NFO	1950.89	WY-1502-165	Partial Deferral	CFO	360.00
WY-1502-094	Partial Deferral	NFO	1000.00	WY-1502-167	Partial Deferral	BFO	83.09
WY-1502-095	Partial Deferral	NFO	1373.81	WY-1502-172	Partial Deferral	BFO	1095.52
WY-1502-097	Partial Deferral	NFO	375.76	WY-1502-173	Defer All	BFO	1813.29
WY-1502-098	Partial Deferral	NFO	116.25	WY-1502-174	Partial Deferral	BFO	524.01
WY-1502-099	Partial Deferral	NFO	160.00	WY-1502-176	Partial Deferral	BFO	333.82
WY-1502-104	Defer All	NFO	2000.54	WY-1502-177	Partial Deferral	BFO	81.10
WY-1502-105	Defer All	NFO	395.01	WY-1502-178	Defer All	BFO	197.95
WY-1502-106	Defer All	NFO	1440.00	WY-1502-179	Defer All	BFO	80.80
WY-1502-107	Defer All	NFO	640.00	WY-1502-180	Defer All	BFO	80.14
WY-1502-108	Partial Deferral	NFO	2355.14	WY-1502-187	Defer All	CFO	960.00
WY-1502-109	Partial Deferral	NFO	879.92	WY-1502-191	Defer All	CFO	240.00
WY-1502-117	Partial Deferral	NFO	114.69	WY-1502-192	Defer All	CFO	1240.00
WY-1502-118	Partial Deferral	NFO	807.73	WY-1502-193	Defer All	CFO	520.00
WY-1502-124	Partial Deferral	NFO	1285.45	WY-1502-194	Defer All	CFO	640.00
WY-1502-125	Defer All	NFO	600.00	WY-1502-249	Defer All	NFO	320.00
						Total	**46741.52**

Four parcels in the Casper FO, WY-1502-191, WY-1502-192, WY-1502-193 and WY-1502-194, were identified for deferral by the WSO because they are located in the Natrona Sage-grouse Core Area and meet the requirements of the Greater Sage-grouse Screen. The Casper FO recommended that these parcels be available for leasing because they are entirely located in the Wind River Basin Management Area (WRBMA). The WRBMA was established in the Approved Casper RMP Record of Decision (ROD) (RMP/ROD decision 7067). The WSO Greater Sage-grouse decision deferred these parcels and removed them from analysis until the WY Sage-grouse RMP Amendment is complete.

Three partial parcels, WY-1502-177, WY-1502-181, and WY-1502-182, comprising approximately 405.63 acres, in the Buffalo FO will be deferred because they are in coal bearing areas in the Powder River Basin in Wyoming. Nominated parcels in coal bearing areas referred to as Wyodak coal in the Powder River Basin in Wyoming under the jurisdiction of the Buffalo FO will not be offered for oil and gas leasing pending revision of the Buffalo RMP. The Interior Board of Land Appeals in April 2003 (158 IBLA 384) rendered a decision regarding a protest of a decision that would have allowed leasing oil and gas in areas where coal resources are present in the Buffalo FO management area. That decision states in part, "…the decision to offer the parcels for leasing was based on existing environmental analyses which either did not contain any discussion of the unique potential impacts associated with coalbed methane extraction and development failed to consider reasonable alternatives relevant to a pre-leasing environmental analysis." As a result of a 2004 appeals court decision on the matter, *Pennaco Energy Inc. v. United States Department of Interior* (377 F.3d 1147), the BLM has suspended oil and gas leasing in the Buffalo FO in formations that have potential for coal bed natural gas. Leasing in coal zones will not resume until environmental analysis is completed which will address future leasing in those areas. Leases are still being offered in the Buffalo FO in those areas that are not underlain with coal and hence, have no potential to produce Coalbed Natural Gas (CBNG). Three partial parcels, WY-1502-177, WY-1502-181, and WY-1502-182, as depicted in Table 1.3 below are deferred from the February 2015 lease sale and are not further analyzed in this document.

Table 1.3 Deferrals Due to Wyodak Decision, *Pennaco Energy Inc. v. United States Department of Interior*, in the Buffalo FO

Parcel Number	Reason Deferred	Field Office	Partial or Entire Deferral	Legal Description of Deferred Acres
WY-1502-177	Wyodak Coal Layer Decision	BFO	Partial Deferral	285.50 acres, T.0460N, R.0700W, Sec. 010 LOTS 6,10,13-15; Sec. 023 LOTS 9,10
WY-1502-181	Wyodak Coal Layer Decision	BFO	Partial Deferral	80.00 acres; T.0570N, R.0720W, Sec. 022 W2NE,SENW,S2SE
WY-1502-182	Wyodak Coal Layer Decision	BFO	Partial Deferral	40.13 Acres T.0570N, R.0720W, Sec. 022 LOTS 4
			Total Acres Deferred	**405.63 acres**

Parcel WY-1502-056 in the Newcastle FO has an inadvertent mix of public domain minerals with acquired minerals, which are leased under different legal authorities. The acquired minerals portion of parcel WY-1502-056 was deferred until the August 2015 sale, to avoid adding a new parcel to the Feb 2015 list:

> WY-1502-056, DEFER IN PART: (160.350 acres) Acquired federal fluid minerals are leased under the authority of The Mineral Leasing Act for Acquired Lands of 1947 (30 U.S.C. § 351 et seq.). This portion of preliminary parcel WY-1502-056 must be segregated from the federal fluid mineral estate to be leased under the authority of the Mineral Leasing Act of 1920 (30 U.S.C. § 181 et seq.). This deferred portion shall be included as a separate parcel in the scheduled August 4, 2015 Competitive Oil and Gas Lease Sale.
> T.0460N, R.0640W, 06th PM, WY
> Sec. 002 LOTS 2;
> Sec. 002 SWNE, W2SE;

Four (4) parcels in the Newcastle FO were adjusted to delete portions which do not contain Federal fluid mineral estate:

> WY-1502-052, DELETE IN PART: (40.000 acres) No federal fluid mineral estate.
> T.0450N, R.0640W, 06th PM, WY
> Sec. 009 NENE;
>
> WY-1502-068, DELETE IN PART: (77.670 acres) No federal fluid mineral estate.
> T.0580N, R.0640W, 06th PM, WY
> Sec. 030 LOTS 3, 4;
>
> WY-1502-113, DELETE IN PART: (39.780 acres) No federal fluid mineral estate.
> T.0550N, R.0670W, 06th PM, WY
> Sec. 005 LOTS 4;
>
> WY-1502-128, DELETE IN PART: (80.000 acres) No federal fluid mineral estate.
> T.0570N, R.0670W, 06th PM, WY
> Sec. 031 E2SE;

Acreages of two parcels in the Newcastle FO were corrected to avoid duplication:

> WY-1502-150, DELETE IN PART: (365.540 acres) Duplication of area included in another parcel (preliminary parcel WY-1502-111).
> T.0540N, R.0680W, 06th PM, WY
> Sec. 001 LOTS 5-11, 14, 15;
>
> WY-1502-153, DELETE IN PART: (80.790 acres) Duplication of area included in another parcel (preliminary parcel WY-1502-111).
> T.0540N, R.0680W, 06th PM, WY
> Sec. 012 LOTS 1, 8;

Parcel WY-l502-137 in the Casper FO is partially located within the Thunder Basin National Grasslands managed by the USFS (560 acres). A portion of this parcel (80 acres) has been deferred in part by the WSO for Greater Sage-grouse concerns. The remaining portion of this parcel managed by the USFS (480 acres of surface estate) is deferred to solicit USFS authorization and input prior to offering for sale. Parcel WY-l502-137 is recommended for deferral in part from leasing in the following locations:

T.0390N, R.0680W, 06th PM, WY
Sec. 027 NWSW;
Sec. 028 E2, SENW, E2SW;

In Parcel WY-1502-173 in the Buffalo FO, a portion of the parcel is within the Thunder Basin National Grasslands managed by the USFS. This parcel has been entirely deferred by the WSO for Greater Sage-grouse concerns. The portion of the parcel managed by USFS (152.24 acres of surface estate) is also deferred to solicit USFS authorization and input prior to offering for sale.

In Parcel WY-1502-249 in the Newcastle FO, the entire parcel is acquired Federal minerals and surface managed by the BLM. This parcel has been entirely deferred by the WSO for Greater Sage-grouse concerns.

Two Parcels, WY-1502-003 & WY-1502-026, were incorrectly represented on FO Lease Lists. These parcels were deleted from the Newcastle FO and placed on the Casper FO parcel lease list.

This EA documents the HPD, Buffalo FO, Casper FO, and Newcastle FO review of the remaining 165 parcels consisting of 188,452 Federal mineral acres and 31,659 Federal surface acres as depicted in Table 1.4 below.

Table 1.4 Federal Mineral Acres & Federal Surface Acres

Field Office	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Buffalo FO	16	13,432	672
Casper FO	16	7,344	120
Newcastle FO	133	167,710	31,028
Total	165*	188,486	31,820

* One Parcel WY-1502-101 is in BFO and NFO; one Parcel WY-1502-189 is in BFO and CFO. Parcels crossing FO jurisdiction lines are reviewed by both FOs, and represented on both FO Lease Lists.

This EA also serves to verify conformance with the approved Buffalo, Casper, and Newcastle RMPs and provides the rationale for attaching stipulations to specific parcels, offering a parcel for lease, deferring a parcel or deleting a parcel from the lease sale.

1.3 Purpose and Need

The purpose of the competitive oil and gas lease sale is to meet the growing energy demands of the United States public through the sale and issuance of oil and gas leases. Continued sale and issuance of lease parcels is necessary to maintain economical production of oil and gas reserves owned by the United States.

The need for the competitive oil and gas lease sale is established by the FOOGLRA to respond to Expressions of Interest (EOI), the FLPMA, and the MLA. The BLM's responsibility under the MLA, is to promote the development of oil and gas on the public domain, and to ensure that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where applicable, through the land use planning process.

Decision to be Made: The BLM will decide whether or not to offer and issue the nominated parcels of the HPD portion at the February 2015 Competitive Oil and Gas Lease Sale and if so, under what terms and conditions.

1.4 Conformance with BLM Land Use Plan(s)

Pursuant to 40 CFR 1508.28 and 1502.21, this EA tiers to and incorporates by reference the information and analysis contained in the following three plans: the Buffalo Resource Management Plan and Final Environmental Impact Statement (1985) and the RMP/ROD approved in October 1985; the Casper Resource Management Plan and Final Environmental Impact Statement (June 2007) and the RMP/ROD approved in December 2007; the Newcastle Resource Management Plan and Final Environmental Impact Statement (June 1999) and the RMP/ROD approved in August 2000 – to include FEIS and/or RMP supplements or amendments, if any.

Buffalo RMP/ROD: According to the Buffalo RMP/ROD, page 16, "MM-7: Continue to lease and allow development of federal oil and gas in the Buffalo Resource Area." The document goes on to state that "Oil and Gas leasing and development will be subject to the standard stipulations of the Wyoming BLM and to other mitigation of surface disturbance as may be necessary."

Casper RMP/ROD: According to the Casper RMP/ROD, page 2-15, Goal MR: 2.1 states, "Maintain oil and gas leasing, exploration, and development, while minimizing impacts to other resource values;" decision 2002 "Parcels nominated for potential oil and gas leasing will be reviewed. Any stipulations attached to these parcels will be the least restrictive needed to protect other resource values;" and decision 2004 "The Casper Field Office is open to mineral leasing, including solid leasables and geothermal, unless specifically identified as administratively unavailable for the life of the plan for mineral leasing. These open areas will be managed on a case-by-case basis."

Newcastle RMP/ROD: According to the Newcastle RMP/ROD, page 12, "Management Actions: Federal oil and gas leases will be issued with appropriate stipulations for protection of other resource values."

The Buffalo, Casper, and Newcastle RMPs provide specific stipulations that would be attached to new leases offered in certain areas or affecting particular resources. These stipulations will be detailed further in this EA.

1.5 Relationship to Statutes, Regulations, or Other Plans

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.

Buffalo FO, Casper FO, and Newcastle FO wildlife biologists reviewed each parcel during the individual FO review. Individual parcels may contain threatened, endangered, candidate, or BLM sensitive species (EA Section 3.0, Affected Environment; Appendix B, Affected Environment Tables). The administrative act of offering and subsequent issuance of oil and gas leases is consistent with the decisions in the Buffalo, Casper, and Newcastle RMPs, including decisions relating to threatened, endangered, candidate, and BLM sensitive species. The proposed action of offering and issuing oil and gas leases is also consistent with the biological assessments and biological opinions for these RMPs. No further consultation with the U. S. Fish and Wildlife Service (FWS) is required.

The WSO sent the preliminary O&G lease parcel list to the Wyoming Game and Fish Department (WGFD) along with a list of parcels deferred by the WSO for Greater Sage-grouse concerns. Each BLM FO sent a revised preliminary O&G lease parcel list to WGFD field personnel. WGFD field personnel had 3 weeks to review the revised preliminary O&G parcels list and send their comments back to the BLM FO. If WGFD field personnel did not have any comments or concerns with the revised preliminary list, they sent an email/letter to the BLM FO that they have reviewed the revised preliminary O&G parcel list, and the WGFD concerns have been met and they have no additional concerns. The BLM FO reviewed WGFD field personnel concerns and addressed their comments. See Table 5.1 for a list of all Persons, Agencies and Organizations consulted for purposes of this EA.

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties (sites that are listed on or eligible for listing on the National Register of Historic Places). Oil and gas leasing is a Federal undertaking which requires compliance with Section 106. Fluid mineral leasing implies surface disturbance which could adversely affect historic properties when parcels are developed. Although the exact nature of that disturbance is not known until a site specific plan is submitted to the BLM, which can occur several years after the parcel is leased. Typically, the HPD meets its compliance with Section 106 of the NHPA for oil and gas leasing and development through a phased approach, which has three distinct decisions – land use planning, leasing, and development. At each phase the BLM narrows its focus as relevant to the action being analyzed, going from large land use areas potentially subject to leasing, to particular parcels to be leased, and then to the site-specific development decisions in which surface-disturbing activities may be approved.

In relation to fluid mineral leasing, the first phase of Section 106 compliance takes place during the land use planning process. RMP creation and land use planning decisions are made in consultation with the State Historic Preservation Officer (SHPO), tribes, cooperating agencies, and other interested parties. During the land use planning process, the BLM seeks to identify and inventory historic properties, including traditional cultural properties (TCP) significant to

tribes, through consultation. The RMP for each FO describes and analyzes, on a very broad scale, potential impacts to known historic properties and includes management decisions that may protect historic properties through closures of certain areas to leasing or the formulation of protective lease stipulations. Surface use restrictions such as controlled surface use (CSU) or no surface occupancy (NSO) lease stipulations are also delineated in RMPs. The analysis performed during the RMP process is intended to identify and protect known historic properties that cannot be readily mitigated and due to its wide-ranging scale, does not include an intensive site specific field inventory component.

The second phase takes place as part of the BLM's process of deciding whether to include individual fluid mineral lease parcels in competitive lease sales in areas that are designated as "open" through the RMP process. This analysis is often done in the context of a NEPA document, such as this EA, and in consultation with the SHPO, tribes, cooperating agencies, and other interested parties. The HPD analyzes available information including, but not limited to, information gathered and considered during the RMP process, for each parcel to consider whether the sale will result in "adverse effects" and to ensure that adequate lease stipulations are included. In some cases, the analyses in the RMPs may be dated or may not have considered new information on historic properties or recent changes to law, regulation or policy. The analysis in the second phase also considers any new information related to historic properties in the potential lease parcels. This phase, in part, is intended to identify historic properties that cannot be readily mitigated and to identify parcels that the BLM may need to defer or delete from leasing lists. Depending on the particular resources identified, this analysis may not require intensive field inventory, especially in light of the uncertainty regarding the type and extent of surface disturbance associated with oil and gas development associated with a parcel. The BLM will include the following cultural resource lease stipulation on any parcel it decides to offer:

> *This lease may be found to contain previously unknown historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.*

The third phase involves the approval process for an APD or other site-specific activities related to oil and gas development. At this stage, a project proponent submits a site specific plan to the FO detailing all proposed activities. The BLM must analyze the potential effects that such activities could have on historic properties. Utilizing historic property information gathered through the two previous stages, the BLM will seek to conduct, as appropriate, site-specific cultural resource inventories, gather additional information through consultation with SHPOs, tribes, and other interested parties, as well as the public, make eligibility determinations, analyze the potential effects and make adverse effect determinations, and seek to resolve any adverse effects through consultation. Completion of the Section 106 process may conclude through the execution of a Memorandum of Agreement or Programmatic Agreement. Additionally, the BLM

would retain the ability to modify or disapprove any activity with potential adverse effects that cannot be successfully avoided, minimized, or mitigated as provided for in the cultural resource stipulation attached to the lease.

BLM FOs must base site specific lease stipulations (such as CSU or NSO) and decisions to withdraw areas from leasing on decisions made within an RMP. RMPs are updated every 5 to 30 years and may not contain current information. If a decision maker determines a cultural resource is difficult or impossible to mitigate and wishes to apply lease stipulations or exclude the site from leasing, the RMP must be updated, amended, or a maintenance action performed prior to leasing.

1.6 Identification of Issues

Analysis required by NEPA was conducted by field office resource specialists who relied on site visits where access was available, personal knowledge of the areas involved, and/or review of existing databases and file information to determine if appropriate stipulations should be attached to specific parcels prior to being made available for lease.

The HPD is predominantly split estate (private surface and Federal minerals). Of the total 197 parcels nominated for leasing (a total of 236,478 Federal mineral acres and 44,735 Federal surface acres), 8 parcels are entirely Federal surface and Federal minerals (6,199 acres); 95 parcels include some Federal surface (44,735.24 Federal mineral acres), while the other 102 parcels are entirely Federal minerals underlying state or private surface (191,743 Federal mineral acres).

Field visits were performed on those parcels to which BLM had access or access was allowed by the surface owners. Sixty-nine (69) parcels were visited using public access such as county or state roads. In the Casper FO, Parcels WY-1502-003, WY-1502-026, WY-1502-101, WY-1502-102, WY-1502-132, WY-1502-135, WY-1502-136, WY-1502-137, WY-1502-138, WY-1502-164, WY-1502-165, WY-1502-175, WY-1502-187, WY-1502-190, WY-1502-191, WY-1502-193, and WY-1502-194 were visited. In the Newcastle FO, Parcels WY-1502-001, WY-1502-002, WY-1502-005, WY-1502-006, WY-1502-018, WY-1502-019, WY-1502-024, WY-1502-027, WY-1502-034, WY-1502-035, WY-1502-036, WY-1502-038, WY-1502-039, WY-1502-040, WY-1502-044, WY-1502-045, WY-1502-047, WY-1502-048, WY-1502-049, WY-1502-055, WY-1502-056, WY-1502-058, WY-1502-060, WY-1502-065, WY-1502-066, WY-1502-067, WY-1502-068, WY-1502-071, WY-1502-072, WY-1502-075, WY-1502-076, WY-1502-077, WY-1502-081, WY-1502-084, WY-1502-085, WY-1502-086, WY-1502-088, WY-1502-100, WY-1502-110, WY-1502-111, WY-1502-113, WY-1502-114, WY-1502-115, WY-1502-116, WY-1502-119, WY-1502-121, WY-1502-122, WY-1502-123, WY-1502-150, WY-1502-153, WY-1502-154, WY-1502-155, were visited. Pictures were taken at these 69 parcels and where available, GPS coordinates were taken at those photo points. In the Buffalo FO, no parcels were visited since all 20 parcels were recommended for full deferral. No significant new information would be obtained or analyzed through site visits in the Buffalo FO. Geographical information system (GIS) data and digital ortho photo quads were used regardless of whether or not the field teams could visit the parcels, but were predominantly relied on for review of the 128 parcels that could not be visited.

Offering and issuing oil and gas leases is strictly an administrative action, which, in and of itself, does not cause or directly authorize any surface disturbance. After a lease has been issued, the lessee has the right to use as much of the lease lands as is necessary to explore, drill for, mine, extract, remove, and dispose of the oil and gas resources (see 43 CFR 3101.1-2, Surface use rights). These post-leasing actions can result in surface disturbance.

As part of the lease issuance process, nominated parcels are reviewed against the appropriate land use plans, and stipulations are attached to mitigate known environmental or resource conflicts that may occur on a given lease parcel. As stated above, on-the-ground impacts would potentially occur when a lessee applies for and receives approval to explore, occupy, and drill on the lease. The BLM cannot determine whether a parcel offered for sale will be leased, or if it is leased, whether the lease will be explored or developed, or how the parcel may be explored or developed. According to one estimate by the BLM Wyoming State Office Reservoir Management Group, from 1960 through 2011, 75,192 leases were issued in Wyoming. Of those, 4,920 leases produced some type of oil or gas in sufficient quantities that the lease was held by production. Therefore, 6.5 percent of the leases sold and 5.3 percent of the acreage was actually developed into production. Also, according to the Tenth Circuit Court of Appeals, site-specific NEPA analysis is not possible absent concrete proposals. Filing an APD is the initial point at which a site-specific environmental appraisal can be undertaken (Park County Resource Council, Inc. v. U.S. Department of Agriculture, 10th Cir., April 17, 1987). Before the lessee files a notice of staking NOS, an APD, or a field development plan, the BLM cannot reasonably determine where companies propose to develop wells on a given lease or even if a lease will be developed at all. Accordingly, additional separate NEPA analysis will be required at the development stage to analyze project-specific impacts associated with exploration and development of the lease. That site-specific environmental documentation would address the site-specific analysis for each proposed well location. Additional conditions of approval (mitigation) may be applied at that time.

Interdisciplinary (ID) teams consisting of a multi-disciplinary group of resource specialists for each FO as well as the HPD were formed to review the parcels proposed for sale and subsequent leasing. Interdisciplinary Teams from each FO reviewed all resources within the given FO and determined whether the resource is present, present but not impacted, or present with the potential for impact. Those resources that were not present or not impacted were eliminated from further analysis as stated in section 1.7 below. Issues that were identified as present with the potential for impact and further discussed in this EA are air resources (including air quality, greenhouse gases (GHG) and visibility), heritage resources, lands and realty, socioeconomics, special management areas, visual resource management (VRM), water resources and wildlife resources (including threatened and endangered (T&E) and BLM sensitive species). In some cases the RMP added stipulations for these resources and those stipulations are detailed in Chapter 4. Only those issues that were not addressed sufficiently in the tiered RMP EISs, where there is new information or BLM policy has changed are analyzed further in Chapter 4 of this EA. The specifics of that new information or BLM policy change is explained in Chapter 3 of this document.

TCPs, sacred sites, or other areas that are of concern to Native American tribes have the potential to be impacted by oil and gas development. The HPD took part in general discussions related to

oil and gas leasing in November of 2010, May of 2011, June of 2011, February of 2012, May of 2012 and June of 2012 with representatives from the Cheyenne River Sioux, Rosebud Sioux, Crow Creek Sioux, Lower Brule Sioux, Oglala Sioux, Sisseton Wahpeton Oyate, Yankton Sioux, Flandreau Santee, Fort Peck, Three Affiliated, Crow, Northern Arapaho and Northern Cheyenne Tribes. The tribes suggested that the BLM consider their concerns with oil and gas leasing and any of their comments on this EA separately from comments received by the public and they voiced concern with the potential of the BLM revealing sensitive information in relation to sacred sites. The BLM must consider all comments on this EA regardless of the source, but the BLM is also required to make additional efforts to hear the concerns of tribes and to keep sensitive information confidential. Letters were sent to each tribe in an effort to gather any information that they are willing to share on this EA. The tribes also suggested the BLM address potential impacts to TCPs and sacred sites prior to issuance of oil and gas leases. The tribes contended that inventories performed by tribal surveyors are necessary to identify all resources that are important to tribes prior to leasing any parcel. They indicated that sites which archeologists interpret as stone circles or cairns may have spiritual significance that non-Native Americans cannot properly identify. The tribes pointed out that an NSO stipulation may not be an adequate site specific protection since they consider the subsurface minerals to be a part of that site. Native American burials were pointed out as especially sensitive sites that should be avoided by all surface disturbing activities. The tribes also argued that mitigation may be impossible for certain TCPs or sacred sites, and it is counterintuitive to lease oil and gas without prior knowledge of such sites.

However, the HPD has made a reasonable effort to identify known TCPs and sacred sites in consultation with the SHPO and tribes during the land use planning process and during the analysis for this document. Intensive field inventories covering entire lease parcels for this proposed lease sale is unnecessary to satisfy the BLM's Section 106 obligations. Additionally, the special lease stipulation related to NHPA compliance gives BLM decision makers the discretion to modify or deny any project specific proposals that could potentially disturb TCPs or sacred sites.

Without a discrete development proposal, the use of hydraulic fracturing in the oil and gas development process cannot be predicted. However, this EA incorporates by reference, in its entirety, a Hydraulic Fracturing White Paper included in Appendix G. This document provides a general discussion of the hydraulic fracturing process and issues associated with its use.

1.7 Issues Considered but Eliminated from Further Analysis

The following issues were identified but eliminated from further analysis as described. The act of offering for sale these Federal mineral leases produces no direct, indirect, or cumulative impacts, except where noted above in Section 1.6 and in Chapter 4, to the following resources beyond those detailed within the respective FO RMP: environmental justice, farmlands, floodplains, fuels and fire management, invasive species and noxious weeds, lands, realty and access, livestock grazing and rangeland health, vegetation, wastes, wetlands and riparian zones, wild and scenic rivers, or woodland and forestry. The subsequent development of the lease would require an APD and/or sundry notice and, in some cases a right-of-way application to access and transport production to or from the lease, which would all require more

site-specific review. Therefore, these resources will not be discussed further in this document.

The analysis of climate change is in its formative phase. It is not feasible to know with certainty the net impacts from the contribution of the proposed action on climate. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. GHGs are analyzed in this document as it relates to the overall climate change analysis, but climate change alone will not be analyzed further in this document.

The parcels listed in Appendix A, WSO Greater Sage-grouse Parcel Review, meeting criteria for Greater Sage-grouse core habitat manageability using the Fluid Mineral Leasing Screen (IM WY-2012-019) or under the BLM Wyoming State Director's discretion, are deferred in whole or in part from this sale and are not further addressed in this analysis.

The proximity to existing and proposed Renewable Energy Development, specifically Wind Development was screened. There were no parcels affected by Wind Development. Conflicts with wind development were eliminated from further analysis due to the fact that the lessee would have to abide by prior existing rights. Thus, if any conflicts were to occur, they would have to be addressed by the lessee, the landowner and the surface managing agency in coordination with the BLM and the wind development company at the time of proposed exploration, development, and drilling.

The FOs screened each parcel for wilderness, wilderness study areas, and lands with wilderness characteristics. Screening criteria and the results are listed in Appendix D, FO Screens, by respective field offices. Buffalo, Casper, and Newcastle FOs found that all of their parcels do not meet the first criteria of the screen "more than 5,000 acres of roadless land (yes/no)"; therefore do not qualify.

1.8 Public Participation

An informal notice letter was sent to affected landowners advising them of the nominations and to solicit their input concerning the lease sale. Two calls were received from landowners requesting general information about the sale process. Informal letters were also sent to Native American tribal contacts known or identified as having interest or concerns with oil and gas leasing in the area. One email response was received from a tribal contact indicating that tribe has no concerns with this lease sale. A press release announcing the availability of the EA for comments was e-mailed to local media on July 21, 12014. The press release stated that the comment period for the EA would run until August 20, 2014. In addition, informational postcards will be mailed to affected landowners and letters were mailed to Native American tribes in July 2014. As required by the BLM leasing policy, where parcels are split estate, a notification letter notifying them of the EA review and possibility to comment was sent to the surface owner based on the surface owner information provided by the party submitting the EOI.

1.9 Summary

This chapter presents the purpose and need for sale of those parcels within the HPD portion of the February 2015 Competitive Oil and Gas Lease Sale, as well as relevant issues. Those issues are elements of the human environment that could be affected by the administrative actions of offering and issuance of leases that were not previously addressed in the tiered RMP EISs, for which new BLM policy has changed or for which new information exists. In order to meet the purpose and need of the HPD portion of the February 2015 Competitive Oil and Gas Lease Sale in a way that resolves the issues, the BLM has considered a range of alternatives. These alternatives are presented in Chapter 2. Chapter 3 gives a description of the affected environment for each resource where a stipulation has been attached as dictated under the pertinent RMP. The potential environmental impacts or consequences to any resource affected resulting from implementation of each alternative considered in detail are analyzed in Chapter 4.

Chapter 2

Proposed Action and Alternatives

2.1 Introduction

The HPD received nominations for 197 parcels (236,478 Federal mineral acres and 44,735 Federal surface acres) for the February 2015 Competitive Oil and Gas Lease Sale. Out of those, 197 parcels (32 entire parcels and 36 partial parcels) were deferred in Chapter 1 for the reasons described therein. Therefore, the remaining 165 parcels will be analyzed in the remainder of this EA. Out of those remaining 165 parcels, 16 parcels are administered by the Buffalo FO, 16 parcels are administered by the Casper FO and 133 parcels are administered by the Newcastle FO. Federal mineral and Federal surface acres for parcels offered in Alternatives A, B and C are shown in Table 2.1 below.

Table 2.1 Parcels Offered for Alternatives A, B, and C

Offered	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Alternative A	0	0	0
Alternative B	139	149,548	20,493
Alternative C	165	188,486	31,820

In some cases, the FO recommended stipulations or deferrals that the HPD determined were not in conformance with previous leasing decisions or the pertinent RMP. Therefore, changes were made by the HPD in accordance with those determinations and are reflected throughout the rest of this document.

2.2 Common to All Alternatives

Lease stipulations will be applied to each parcel uniformly across all alternatives by Field Office to conform with each RMP. Please see Chapter 4, Common to All Alternative section for the details.

2.3 Alternative A – No Action

The BLM NEPA Handbook (H-1790-1) states that for EAs on externally initiated proposed actions, the No Action Alternative generally means that the proposed action would not take place. In the case of a lease sale, this would mean that an EOI to lease (parcel nomination) would be deleted. The No Action alternative would delete all 165 parcels from the HPD portion of the February 2015 Competitive Oil and Gas Lease Sale.

Any ongoing oil and gas development as well as any other land uses would continue on surrounding Federal, private, and state leases.

Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from future sale as long as the area remains open to fluid mineral leasing.

2.4 Alternative B – Proposed Action

Alternative B would offer 139 parcels currently analyzed in this EA for the HPD portion of the February 2015 Competitive Oil and Gas Lease Sale (Table 2.2), and as shown in Tables 2.3, 2.4 and 2.5 below and explained in the text. Under Alternative B, 149,548 Federal mineral acres and 20,493 Federal surface acres would be offered for lease, while 38,938 Federal mineral acres and 11,327 Federal surface acres would be deferred.

Table 2.2 Federal Acres Offered and Deferred in Alternative B

Alternative B	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Offered	139	149,458	20,493
Deferred	26	38,938	11,327

Buffalo FO recommended deferring all parcels nominated for the February 2015 Oil & Gas Lease Sale within the FO boundaries not previously deferred by the WSO for Sage-grouse concerns or Wyodak Decision, *Pennaco Energy Inc. v. United States Department of Interior* in Chapter 1. This recommendation was based upon comparison with the Preferred Alternative of the Buffalo RMP Revision Draft EIS (Draft EIS) and the differences in stipulations between this newer revision and the current 1985 Buffalo RMP. Based upon the Preferred Alternative of the Draft EIS, all of the parcels will need to have substantially different stipulations added than currently used in the 1985 Buffalo RMP. See Table 2.3 for a comparison of types and numbers of stipulations assigned to parcels for the 1985 RMP and the Draft RMP.

Table 2.3 BFO Stipulation Comparison 1985 to Proposed RMP

1985 RMP		**Proposed RMP**	
Parcel #	**Type of Stip & # Stips**	**Parcel #**	**Type of Stip & # Stips**
WY-1502-166	2 NSO; 2 TLS	WY-1502-166	7 CSU; 1 TLS
WY-1502-167	2 NSO; 2 TLS	WY-1502-167	8 CSU; 2 TLS
WY-1502-168	1 NSO; 1 TLS	WY-1502-168	8 CSU; 1 TLS
WY-1502-169	2 TLS;	WY-1502-169	4 CSU; 1 TLS
WY-1502-170	1 NSO; 2 TLS	WY-1502-170	5 CSU; 1 TLS
WY-1502-171	1 NSO; 1 TLS	WY-1502-171	2 CSU; 1 TLS
WY-1502-172	1 TLS	WY-1502-172	2 CSU, 1 TLS
WY-1502-173	1 NSO; 1 TLS	WY-1502-173	6 CSU
WY-1502-174	1 NSO; 1 TLS	WY-1502-174	6 CSU
WY-1502-176	1 NSO; 2 TLS	WY-1502-176	1 NSO; 5 CSU; 4 TLS
WY-1502-177	1 NSO; 1 CSU; 2 TLS	WY-1502-177	2 NSO; 9 CSU; 2 TLS
WY-1502-178	2 NSO; 2 TLS	WY-1502-178	6 CSU; 2 TLS

WY-1502-179	NONE		WY-1502-179	2 CSU; 1 TLS
WY-1502-180	NONE		WY-1502-180	5 CSU; 1 TLS
WY-1502-181	1 NSO; 1 TLS		WY-1502-181	5 CSU; 1 TLS
WY-1502-182	1 NSO		WY-1502-182	5 CSU; 1 TLS
WY-1502-183	NONE		WY-1502-183	5 CSU
WY-1502-186	1 NSO		WY-1502-186	3 CSU
WY-1502-188	2 NSO		WY-1502-188	8 CSU
WY-1502-189	1 NSO		WY-1502-189	6 CSU

Table 2.4 BFO Deferrals Due to Differences in 1985 RMP to Proposed RMP Stipulations

#	Parcel Number	FO	Deferral	Legal Description of Deferred Acres
1	WY-1502-166	BFO	Defer All	**923.200** acres
2	WY-1502-167	BFO	Defer in Part	**1821.340** acres; T.0450N, R.0690W, Sec. 001 LOTS 5,6,11-20; 002 LOTS 5-8; 011 LOTS 7,8,13,14; 013 LOTS 5,9,10; 014 LOTS 1,2,7-10,15,16; 023 LOTS 1,2,7,8; 024 LOTS 4,5; 025 LOTS 5; 026 LOTS 3-8
3	WY-1502-168	BFO	Defer All	**1999.590** acres
4	WY-1502-169	BFO	Defer All	**647.870** acres
5	WY-1502-170	BFO	Defer All	**81.410** acres
6	WY-1502-171	BFO	Defer All	**82.770** acres
7	WY-1502-172	BFO	Defer in Part	**1012.970** acres; T.0540N, R.0690W,Sec. 001 LOTS 5-11; 002 LOTS 5,6; 003 LOTS 5-10; 004 LOTS 5; 011 LOTS 3-5; 014 LOTS 1-5,7;
8	WY-1502-174	BFO	Defer in Part	**1421.890** acres; T.0540N, R.0690W, Sec.025 LOTS 2,7-15; 027 LOTS 6,11,13,14; 034 LOTS 1-15; 035 LOTS 1-6
9	WY-1502-176	BFO	Defer in Part	**214.230** acres; T.0450N, R.0700W, Sec.014 LOTS 9,10,15,16; 023 LOTS 16
10	WY-1502-177	BFO	Defer in Part	**687.370** acres; T.0460N, R.0700W, Sec. 009 LOTS 6,8,9,11; 010 LOTS 2-4,7-9,16; 011 LOTS 2,3,5,9-11
11	WY-1502-181	BFO	Defer in Part	**244.310** Acres; T.0570N, R.0720W, Sec. 022 LOTS 1; 02W2NE,SENW,N2SE
12	WY-1502-182	BFO	Defer in Part	**8.210** Acres; T.0570N, R.0720W, Sec. 022 LOTS 2
13	WY-1502-183	BFO	Defer All	**.570** acres
14	WY-1502-186	BFO	Defer All	**1284.670** acres
15	WY-1502-188	BFO	Defer All	**1961.640** acres
16	WY-1502-189	BFO	Defer All	**1040.000**acres
				Total Acres Deferred for BFO RMP **13,432**

Table 2.5 Deferrals due to Cultural Concerns

#	Parcel Number	Type Deferral	Mineral Acres Deferred	Reason for Deferral
1	WY-1502-005	Partial Deferral	146.02	Old Woman Creek Hills Sacred Site
2	WY-1502-007	Partial Deferral	73.13	Old Woman Creek Hills Sacred Site
3	WY-1502-010	Partial Deferral	120.00	Old Woman Creek Hills Sacred Site
4	WY-1502-014	Partial Deferral	915.28	Old Woman Creek Hills Sacred Site
5	WY-1502-021	Partial Deferral	40.00	Old Woman Creek Hills Sacred Site
6	WY-1502-022	Partial Deferral	520.00	Old Woman Creek Hills Sacred Site
7	WY-1502-027	Defer All	480.20	Old Woman Creek Hills Sacred Site
8	WY-1502-028	Partial Deferral	1107.50	Old Woman Creek Hills Sacred Site
9	WY-1502-029	Partial Deferral	720.00	Old Woman Creek Hills Sacred Site
10	WY-1502-030	Partial Deferral	606.96	Old Woman Creek Hills Sacred Site
11	WY-1502-031	Defer All	1160.00	Old Woman Creek Hills Sacred Site
12	WY-1502-032	Defer All	2120.00	Old Woman Creek Hills Sacred Site
13	WY-1502-033	Defer All	320.00	Old Woman Creek Hills Sacred Site
14	WY-1502-034	Partial Deferral	720.00	Old Woman Creek Hills Sacred Site
15	WY-1502-083	Partial Deferral	1256.34	Little Missouri Antelope Trap Site
16	WY-1502-084	Partial Deferral	1107.36	Little Missouri Antelope Trap Site
17	WY-1502-085	Partial Deferral	738.67	Little Missouri Antelope Trap Site
18	WY-1502-095	Partial Deferral	809.02	Little Missouri Antelope Trap Site
19	WY-1502-117	Defer All	2410.37	Little Missouri Antelope Trap Site
20	WY-1502-118	Defer All	1400.00	Little Missouri Antelope Trap Site
21	WY-1502-119	Defer All	2160.00	Little Missouri Antelope Trap Site
22	WY-1502-120	Defer All	2384.11	Little Missouri Antelope Trap Site
23	WY-1502-121	Defer All	2240.00	Little Missouri Antelope Trap Site
24	WY-1502-122	Partial Deferral	1236.86	Little Missouri Antelope Trap Site
25	WY-1502-123	Partial Deferral	513.15	Little Missouri Antelope Trap Site
26	WY-1502-124	Defer All	81.13	Little Missouri Antelope Trap Site
27	WY-1502-158	Partial Deferral	120.00	Little Missouri Antelope Trap Site
		Total Acres	25,506.10	

Note: Some of these parcels are also recommended for deferral for SG issues in part.

Parcels WY-1502-005, WY-1502-007, WY-1502-010, WY-1502-014, WY-1502-021, WY-1502-022, WY-1502-027, WY-1502-028, WY-1502-029, WY-1502-030, WY-1502-031, WY-1502-032, WY-1502-033 and WY-1502-034 encompassing 9,049.09 acres (Table 2.5) are in Old Woman Creek Hills, a geographic feature that is most likely significant to numerous tribes. As a result of recent APD permitting in the area, several sites with religious and cultural significance to many tribes were identified. Native American consultations revealed strong tribal objections to any oil and gas related activity in the Old Woman Creek Hills. Deferral is necessary until consultation with the tribes can be completed in order to analyze the extent of the Old Woman Creek Hills area, its significance to tribes and land use allocations in relation to that area.

The remaining parcels WY-1502-083, WY-1502-084, WY-1502-085, , WY-1502-095, WY-1502-117, WY-1502-118, WY-1502-119, WY-1502-120, WY-1502-121, WY-1502-122, WY-1502-123, WY-1502-124 and WY-1502-158 encompassing 16,457.01 acres (Table 2.5) would be either totally deferred or partially deferred pending site-specific tribal consultation on the

Little Missouri Antelope Trap Site. Each parcel contains potentially sensitive cultural places of religious or spiritual importance to regional Native American tribes. Tribal consultation on these three areas prior to any lease decision is warranted for the identification and subsequent protection of sensitive cultural sites. The Newcastle RMP/ROD states, "as appropriate, specific sites on public lands will be managed for their traditional Native American cultural values" (page 8). Deferral of these parcels would assist the BLM in complying with the AIRFA.

Newcastle FO recommended deferral or partial deferral for 14 parcels within the Greater Sage-grouse Core/Connectivity areas that were not deferred by the WSO for Greater Sage-grouse per BLM WY guidance (IM WY-2012-019) or in Core/Connectivity areas that contain less than 640 acres. The parcels which were recommended for deferral or partial deferral by Newcastle FO for potential inconsistency with the pending WY Sage-grouse RMP Amendment include WY-1502-046, WY-1502-050, WY-1502-051, WY-1502-097; WY-1502-098, WY-1502-099, WY-1502-109, WY-1502-143, WY-1502-145, WY-1502-146, WY-1502-158, WY-1502-159, WY-1502-161, and WY-1502-162.

Because these parcels were determined to be suitable for leasing in conformance with BLM WY guidance (IM-WY-2019-019) they will not be deferred. These parcels encompass 8,086 acres in Core (5-hundredths of one percent of the Core area) and 6,331 acres in Connectivity (about 1.7% of the Connectivity area). Statewide the acres of Federal oil and gas leases have declined by 49% since 2008 (see Figure 3.4). The BLM and State of Wyoming believe that continued leasing in conformance with the policy (Greater Sage-grouse Screen) will not jeopardize the BLM's ability to select from the range of reasonable alternatives in the WY Sage-grouse RMP amendment/revision EIS.

Similarly, Casper FO recommended deferral of parcel WY-l502-190 pending the completion of WY Sage-grouse RMP Amendment and potential stipulation conflicts. Parcel WY-l502-190 is located in the Bates Hole Management Area (BHMA) and entirely located outside of Greater Sage-grouse Core Area. Because entire Parcel WY-1502-190 is outside of the Greater Sage-grouse Core/Connectivity Area, this parcel will be offered in the February 2015 Sale.

2.5 Alternatives C – Offer All Parcels for Sale

Alternative C will offer all 165 parcels for sale and subsequent leasing as compared to Alternative B, which will offer 139 parcels to be leased as described above. All other aspects of this alternative are the same as the proposed action. Federal mineral and Federal surface acres offered and deferred for Alternative C are shown in Table 2.6 below.

Table 2.6 Federal Acres Offered and Deferred in Alternative C

Alternative C	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Offered	165	188,486	31,820
Deferred	0	0	0

2.6 Alternatives Considered, but Eliminated from Further Analysis

No other action alternatives were considered by the three FO ID teams or the HPD team.

Chapter 3

Affected Environment

3.1 Introduction

This Chapter presents the affected environment (*i.e.*, the physical, biological, social, and economic values and resources) identified by the three FOs, and presented as issues in Chapter 1 (Section 1.6) of this EA. This Chapter provides the baseline for comparison of alternatives for impacts and consequences described in Chapter 4. Refer to Appendix B, Affected Environment Tables which provides a HPD summary of stipulations applied by parcel.

3.2 General Setting

The proposed lease parcels are located in Campbell, Converse, Crook, Goshen, Johnson, Natrona, Niobrara and Weston Counties in Wyoming. The area is characterized by somewhat flat rolling prairie with breaks and steep gullies near major hydrologic features.

3.3 Resources/Issues Identified for Analysis

3.3.1 Air Resources

In addition to the air quality information in the RMPs, new information about GHGs and their effects on national and global climate conditions has emerged. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O); and several trace gases on global climate. Through complex interactions on a global scale, GHG emissions 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 (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, and may contribute to overall climatic changes.

This EA incorporates an analysis of the contributions of the proposed action to GHG emissions and a general discussion of potential impacts to climate. Air Resources include climate, climate change, air quality, air quality-related values (including visibility and atmospheric deposition) and smoke management. Therefore, NEPA requires that the BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as part of the planning and decision-making process.

3.3.1.1 Air Quality

The U.S. Environmental Protection Agency (EPA) establishes air quality standards (NAAQS) for criteria pollutants. Criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter 2.5 microns or less in diameter (PM2.5), particulate matter 10 microns or less in diameter (PM10), sulfur dioxide (SO_2), and lead (Pb). Air pollutant

concentrations greater than the NAAQS would represent a risk to human health.

EPA has delegated regulation of air quality to the State of Wyoming and is administered by the Wyoming Department of Environmental Quality (WDEQ). Wyoming Ambient Air Quality Standards (WAAQS) and 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.

For the most part, the counties that lie within the jurisdictional boundaries of the BLM HPD (Natrona, Converse, Platte, Goshen, Niobrara, Weston, Crook, Campbell, Sheridan, and Johnson) are classified as in attainment for all state and national ambient air quality standards as defined in the Clean Air Act of 1977, as amended. The one exception is the City of Sheridan, which was designated as nonattainment for PM10 in 1991 (56 FR 11101). All monitoring sites operated by the WDEQ Air Quality Division (AQD), in the HPD, including the City of Sheridan, are currently in compliance with the NAAQS and WAAQS.

Various state and Federal agencies monitor air pollutant concentrations and visibility throughout Wyoming. Table 3.1 lists the available air quality monitoring sites within the HPD and relevant sites nearby. The WDEQ operates PM10 monitors as part of the State and Local Monitoring Site (SLAMS) network. Other sites include several Interagency Monitoring of Protected Visual Environments (IMPROVE) monitors and BLM administered sites that are part of the Wyoming Air Resource Monitoring System (WARMS). Atmospheric deposition (wet) measurements of ammonium, sulfate, and various metals are taken at the Newcastle Site, which the BLM operates as part of the National Acid Deposition Program (NADP).

Table 3.1 Air Quality Monitoring Sites within the HPD

County	Site Name	Type of Monitor Type	Parameter	Operating Schedule	Location	
					Longitude	Latitude
Campbell	Thunder Basin	SPM	O3, NOx and Met	Hourly	-105.3000	44.6720
	South Campbell County	SPM	O3, NOx, PM10 and Met	1/3 (PM10) and hourly (NOx and O3)	-105.5000	44.1470
	Belle Ayr Mine	SPM	NOx and PM2.5	1/3 (PM2.5) and hourly (Ox)	-105.3000	44.0990
	Wright	SPM	PM10	1/6	-105.5000	43.7580
	Gillette	SLAMS	PM10	1/6	-105.5000	44.2880
	Black Thunder Mine	SPM	PM2.5	1/3	-105.2000	43.6770
	Buckskin Mine	SPM	PM2.5	1/3	-105.6000	44.4720
	Fortification Creek	WARMS	PM2.5,Nitrate,Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide, Meteorology	1/3 (PM2.5) and 1/7 (others)	-105.9198	44.33953
	South Coal	WARMS	PM2.5 and Meteorology		-105.8378	44.9401

County	Site Name	Type of Monitor Type	Parameter	Operating Schedule	Location	
					Longitude	Latitude
	Thunder Basin	IMPROVE	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide & Meteorology	1/3	-105.2874	44.6634
Converse	Antelope Mine	SPM	PM2.5	1/3 (PM2.5) and hourly (NOx)	-105.4000	43.4270
Johnson	Buffalo	WARMS	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide and Meteorology	1/3 (PM2.5) and 1/7 (others)	-106.0189	44.1442
	Cloud Peak	IMPROVE	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide and Meteorology	1/3	-106.9565	44.3335
Natrona	Casper	SLAMS	PM10 and PM 2.5	1/3	-106.3256	42.8516
Sheridan	Sheridan-Highland Park	SLAMS	PM10 and PM2.5	1/3 (PM10); 1/3 and 1/6 (PM2.5)	-107.0000	44.8060
	Sheridan-Police Station	SLAMS	PM10 and PM2.5	1/1 (PM10) and 1/3 & 1/6 (PM2.5)	-107.0000	44.8330
	Sheridan	WARMS	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate and Sulfur Dioxide, Meteorology	1/3 (PM2.5) and 1/7 (others)	-106.8472	44.9336
Weston	Newcastle	WARMS	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide and Meteorology, ozone	1/3 (PM2.5) and 1/7 (others)	-104.1919	43.8731
	Newcastle	NADP	Wet deposition of ammonium, sulfate, metals	Weekly	-104.1917	43.873

The BLM assessed recent air quality conditions within the HPD boundary by examining data collected by monitors in the area, supplemented by various monitors in neighboring planning areas, as summarized in Table 3.2. The examination of these data indicates that the current air quality for criteria pollutants in the HPD is considered good in compliance with applicable NAAQS and WAAQS. Based on measurements in the area, visibility in the HPD is considered excellent.

Table 3.2 Primary Standards and Representative Concentrations (Air Quality Conditions)

Pollutant	Averaging Time	NAAQS (WAAQS if different)	Representative Concentrations	Data Source
Carbon Monoxide (CO)	1 hour	35 ppm	1.6 ppm	**Murphy Ridge** - 2007 Data source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-040-0101)
	8 hour	9 ppm	1.5 ppm	
Nitrogen Dioxide (NO_2)	1 hour	100 ppb	11 ppb	3 year average of the 98th percentile for **Thunder Basin National Grasslands**, 2009-2011. Data Source EPA's AQS Quicklook Report (AQS ID 56-005-0123)
	Annual	53 ppb	2 ppb	Annual arithmetic mean value for **Thunder Basin National Grasslands**, 2011. Data source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-0035-0123)

Pollutant	Averaging Time	NAAQS (WAAQS if different)	Representative Concentrations	Data Source
Ozone	8 hour	0.075 ppm	0.061 ppm	3-year average of the fourth highest daily maximum 8-hour ozone concentration at **Thunder Basin National Grasslands**, 2009-2011. Data source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-0035-0123)
PM_{10}	24 hour	150 µg/m3	40 µg/m^3	2011 max PM10 concentration at **South Campbell County** Air Quality Monitoring Station. Data Source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-005-0456)
	Annual	(50 µg/m3)	11 µg/m^3	3-year average of the weighted annual mean PM10 concentration at **Campbell County** Air Quality Monitoring Station. Data Source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-005-0456). Years 2009-2011
$PM_{2.5}$	24 Hour	35 µg/m3	8 µg/m^3	3-year average of the 98th percentile of the 24-hour PM2.5 concentration at **Antelope** Air Quality Monitoring Station. Data Source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-009-0189). Years 2009-2011. Note: During this period the monitoring method was changed, one or more years of incomplete data are used in this calculation.
	Annual	12.0 µg/m3	3.3 µg/m^3	3-year average of the weighted annual mean PM2.5 concentration at **Antelope** Air Quality Monitoring Station. Data Source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-009-0819). Years 2009-2011. Note: During this period the monitoring method was changed, one or more years of incomplete data are used in this calculation.
Sulfur Dioxide (SO_2)	1 hour	75 ppb	4 ppb	3 year average of the 99th percentile at **Murphy Ridge** Monitoring Station 2007-2009. Data source: EPA's Air Quality System (AQS) Quick Look Report (AQS ID: 56-040-0101)
	3 hour	(0.5 ppm)	0.0049 ppm	Annual Summary Report for **Murphy Ridge**: January 1, 2009 – December 31, 2009.
	24 hour	(0.10 ppm)	0.0021 ppm	Annual Summary Report for **Murphy Ridge**: January 1, 2009 – December 31, 2009.
	Annual	(0.02 ppm)	0.00029 ppm	Annual Summary Report for **Murphy Ridge**: January 1, 2009 – December 31, 2009.

3.3.1.2 Greenhouse Gas Emissions

GHGs that are included in the U.S. Greenhouse Gas Inventory are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). CO_2 and methane (CH_4) are typically emitted from combustion activities or are directly emitted into the atmosphere.

Currently, the WDEQ AQD does not regulate GHG emissions, although these emissions are regulated indirectly by various other regulations.

Some GHGs such as carbon dioxide occur naturally and are emitted to the atmosphere through both natural processes and human activities. Other GHGs (e.g., fluorinated gases) are created and emitted solely through human activities. The primary GHGs that enter the atmosphere as a result of anthropogenic activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_20), and fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These synthetic gases are GHGs that are emitted from a variety of industrial processes.

Several activities occur within the HPD that may generate GHG emissions: oil, gas, and coal development, large fires, livestock grazing, and recreation using combustion engines which can potentially generate CO_2 and methane. Oil and gas development activities can generate carbon dioxide (CO_2) and methane (CH_4). CO_2 emissions result from the use of combustion engines, while methane can be released during processing. Wildland fires also are a source of other GHG emissions, while livestock grazing is a source of methane. A description of the potential GHG emissions associated with the proposed leasing activities is included in Chapter 4.

Of the parcels that have been nominated for the HPD portion of the February 2015 Competitive Oil and Gas Lease Sale, all are located within areas defined as having high, moderate, low, or very low potential for occurrence of oil and gas (see RMP Reasonably Foreseeable Development scenarios (RFD) for both Casper (page 49, Table 15) and Buffalo (page 69, Appendix C). Newcastle does not have an RFD, but according to petroleum engineers and geologists within the BLM, Newcastle FO has the same potential for occurrence as the other offices as can be seen by the continued interest and development in oil and gas operations.

3.3.1.3 Visibility

There are several National Parks, National Forests, recreation areas, and wilderness areas within and surrounding the HPD. Table 3.3 lists areas designated as Class I or Class II Areas. National Parks, National Monuments, and some state designated Wilderness Areas are designated as Class I. The Clean Air Act "declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas…from manmade air pollution." 42 U.S.C. § 7491(a)(1).25. Under BLM Manual Section 8560.36, BLM lands, including wilderness areas not designated as Class I, are managed as Class II, which provides that moderate deterioration of air quality associated with industrial and population growth may occur.

Table 3.3 National Parks, Wilderness Areas, and National Monuments

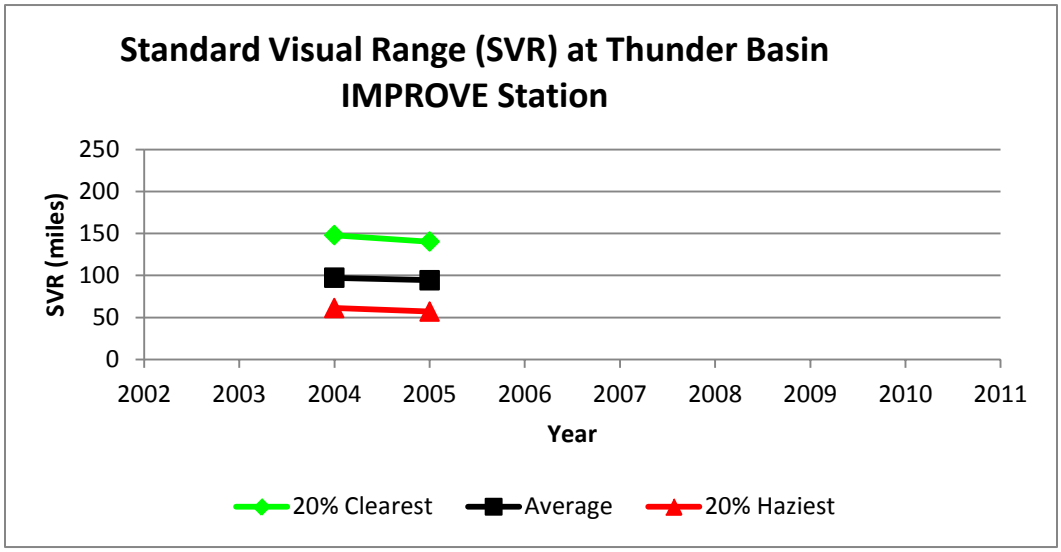
Area Name	Closest Distance to High Plains District (miles)	Direction from the High Plains District	Clean Air Act Status of the Area
Badlands National Park	>100	East	Class I
Bridger Wilderness Area	90	West	Class I
Cloud Peak Wilderness Area	within	---	Class II
Devils Tower National Monument	within	---	Class II
Fitzpatrick Wilderness Area	100	West	Class I
Grand Teton National Park	>100	West	Class I

Area Name	Closest Distance to High Plains District (miles)	Direction from the High Plains District	Clean Air Act Status of the Area
Jewel Cave National Monument	<20	East	Class II
North Absaroka Wilderness Area	>100	Northwest	Class I
Teton Wilderness Area	>100	Northwest	Class I
Washakie Wilderness Area	>100	Northwest	Class I
Wind Cave National Park	<50	East	Class I
Yellowstone National Park	>100	Northwest	Class I

Source: NPS 2006

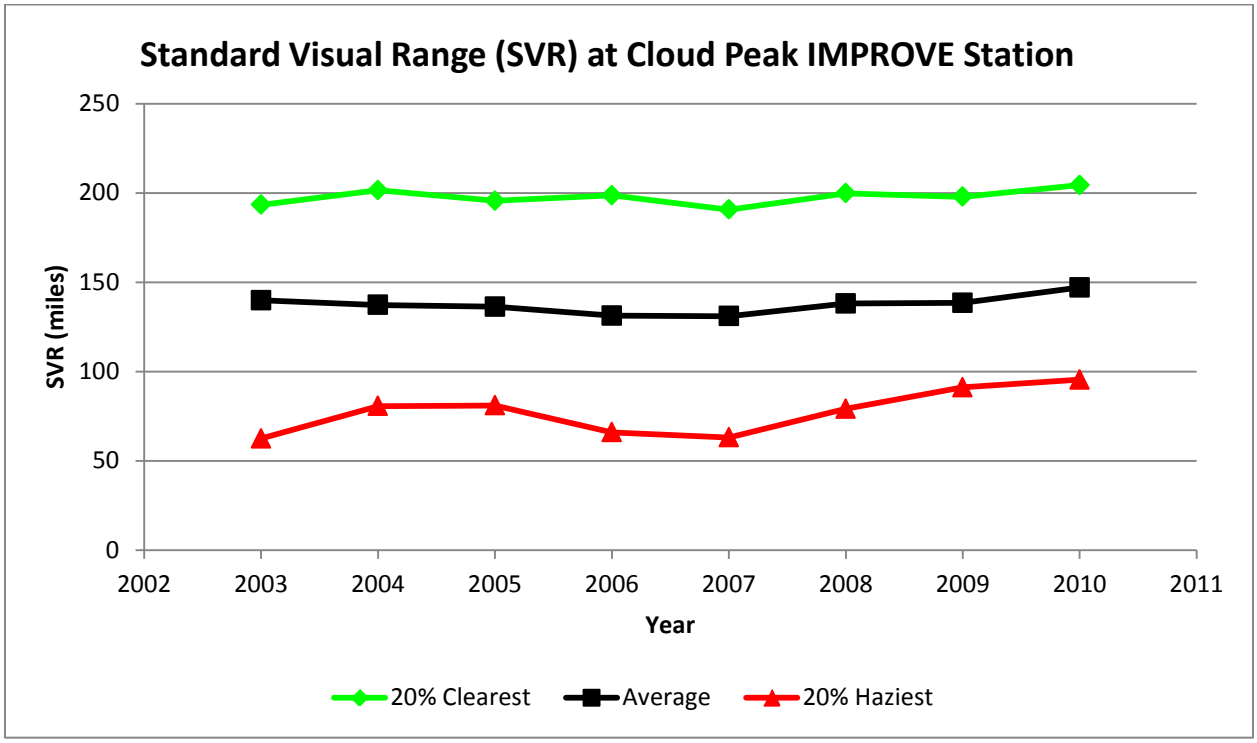
The BLM works cooperatively with several other Federal agencies to measure visibility with the Inter-Agency Monitoring of Protected Visual Environments (IMPROVE) network. As noted above, data collected at the Thunder Basin National Grasslands and Cloud Peak Wilderness IMPROVE monitoring sites have been used indirectly to monitor visibility in the HPD. Figure 3.1 presents visibility data for the Thunder Basin IMPROVE site for the period preceding 2010 and Figure 3.2 presents visibility data for the Cloud Peak IMPROVE site for the period preceding 2010. The data for the two sites are consistent and show very good to excellent visibility ranges within the HPD, even for the 20 percent haziest days. Although there are not enough data to discern trends at the Thunder Basin site, the five-year record at the Cloud Peak site does show a very slight degradation of visibility over this time period.

Figure 3.1 Standard Visual Range (SVR) for the Thunder Basin IMPROVE site



Source: IMPROVE 2010

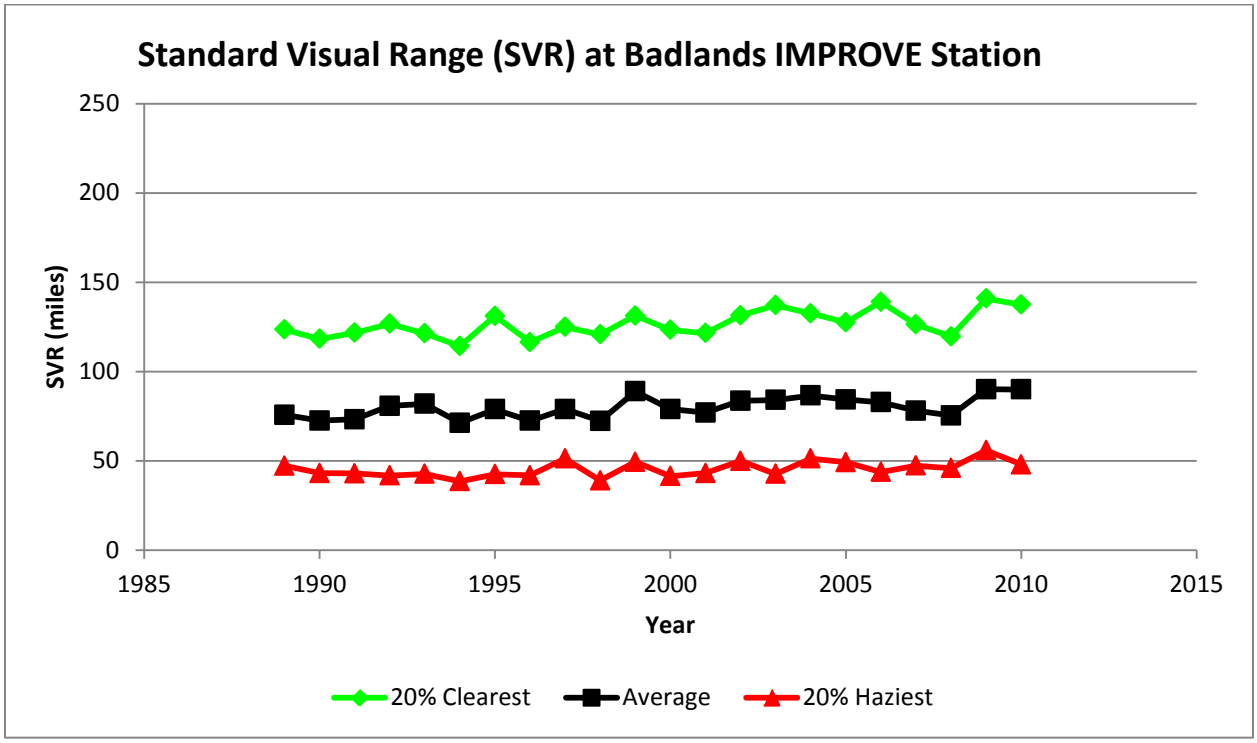
Figure 3.2 Standard Visual Range (SVR) for the Cloud Peak IMPROVE site



Source: IMPROVE 2010

In addition to visibility measurements within the HPD, Figure 3.3 presents visibility estimates SVR for the Badlands National Park site, located east of the HPD, preceding 2010. This figure shows the annual average visual range estimates and the estimates for the 20 percent clearest days and 20 percent haziest days. The visibility estimates for the Badlands site are lower than those for the Thunder Basin and Cloud Peak sites, but no real trend in visibility can be seen and this could indicate a flat trend for SVR during this period at the Badlands monitor.

Figure 3.3 Standard Visual Range (SVR) for the Badlands National Park IMPROVE site



Source: IMPROVE 2010

3.3.2 Heritage Resources

All parcels addressed in this EA have the potential to contain historic properties including prehistoric and historic archaeological sites, TCPs, and sacred sites. File searches performed by individual field offices revealed that portions of the parcels have been previously inventoried for cultural resources, but there are many areas that have not been inventoried. Prior inventories in or near the parcels located site types that include prehistoric habitations, lithic scatters, stone circle sites, cairns, prehistoric quarries and workshops, prehistoric rock art, historic trash scatters, trash scatters, homesteading sites, historic trails, and historic inscriptions. The majority of the sites are not eligible, although numerous historic properties are present. Reviews of individual RMPs revealed that protective stipulations were applied to historic properties within proposed lease parcels as described below.

Historic Trails

Four National Historic Trails (NHT) and other historic trails of regional and national significance cross the Casper FO and HPD. The four NHTs are formally known as the "Oregon- California-Mormon Pioneer-Pony Express Trail," but generically as the Oregon Trail because the routes overlap in many areas. The NHTs are associated with sites such as Fort Caspar and Fort Laramie. These routes were major thoroughfares for westward expansion, military campaigns, and to the gold fields of California, Idaho, and Montana. John Bozeman's shorter route to the Montana

mining area was one of the catalysts of the Plains Indian wars in the latter half of the nineteenth century. Additionally, the Texas Trail, the Cheyenne-Deadwood Stage Road, and other historic roads were routes important at a regional level, opening central Wyoming to settlement, commerce, agriculture, industry, and travel. Congress designated the Oregon and Mormon Pioneer trails as NHTs in November 1978. The purpose of that Act was to identify and protect the trails, along with their historic remnants and artifacts, for public use and enjoyment.

In 1863 John Bozeman scouted a route through the Powder River Basin that would provide a direct overland route for freight traffic and immigrants to the gold fields in western Montana. The later establishment of the Bozeman Trail and the efforts of the United States Army to protect travelers along the route led to "Red Cloud's War" between the United States Army and a combined force of Sioux, Cheyenne, and Arapaho. Although the U.S. Army established several forts along the Bozeman Trail, it never fully succeeded in protecting travelers along the trail. The Fetterman Battle near Fort Phil Kearney resulted in the worst defeat of the U.S. Army at the hands of the Plains Indians as Fetterman and his entire command of 80 soldiers were killed. The Army eventually abandoned its occupation of the region with the signing of the second Treaty of Fort Laramie in 1868, which closed the Bozeman trail and ceded the area to the Sioux.

Six Parcels in the Newcastle FO, WY-1502-028, WY-1502-030, WY-1502-031, WY-1502-033, WY-1502-034 and WY-1502-036 contain the Cheyenne-Deadwood Trail route.

Old Woman Creek Hills

Part of all of Newcastle FO Parcels WY-1502-005, WY-1502-007, WY-1502-010, WY-1502-014, WY-1502-021, WY-1502-022, WY-1502-027, WY-1502-028, WY-1502-029, WY-1502-030, WY-1502-031, WY-1502-032, WY-1502-033 and WY-1502-034 are in the Old Woman Creek Hills, a geographic feature that is most likely significant to numerous tribes. As a result of recent APD permitting in the area, several sites with religious and cultural significance to many tribes were identified. Native American consultations revealed strong tribal objections to any oil and gas related activity in the Old Woman Creek Hills. Consultation with the tribes is necessary to analyze the extent of the Old Woman Creek Hills area, its significance to tribes and land use allocations in relation to that area.

Little Missouri Antelope Trap Site

Parcels WY-1502-083, WY-1502-084, WY-1502-085, WY-1502-095, WY-1502-117, WY-1502-118, WY-1502-119, WY-1502-120, WY-1502-121, WY-1502-122, WY-1502-123, WY-1502-124 and WY-1502-158 in the Newcastle FO are either totally or partially in Little Missouri Antelope Trap Site. Site-specific tribal consultation is needed for the Little Missouri Antelope Trap Sites to determine potentially sensitive cultural places of religious or spiritual importance to regional Native American tribes. The WSO entered into a cooperative agreement with the University of Wyoming to investigate the nature of prehistoric and historic aboriginal antelope trapping and to learn the role of antelope trap ceremonial sites in the traditional culture of Plains Indian tribes. Tribal consultation on these areas prior to any lease decision is warranted for the identification and subsequent protection of sensitive cultural sites. The Newcastle RMP/ROD

states, “as appropriate, specific sites on public lands will be managed for their traditional Native American cultural values” (page 8). Deferral of these parcels would assist the BLM in complying with the AIRFA.

3.3.3 Lands and Realty

The BLM Lands and Realty program is aimed at managing the underlying land base that hosts and supports all resources and management programs. Key activities of FO lands and realty programs include (1) land use authorizations (e.g., leases and permits, airport leases; (2) land tenure adjustments (e.g., sales, exchanges, donations, purchases); and (3) withdrawals, classifications and other segregations. The BLM works cooperatively to manage land and realty programs with other Federal agencies, the State of Wyoming, counties and cities, and other public and private landholders.

Newcastle FO Parcels WY-1502-067 and WY-1502-068 include an area of private surface leased by Ellsworth Air Force Base for military training. Ellsworth personnel were advised of the lease sale parcel nominations, and identified concerns with oil and gas operations that might conflict with this military installation. Potential conflicts include physical operations within the fenced facility, interference with line of sight communication systems caused by drilling rigs or other structures, and flight hazards to military aircraft. Under the regulations at 43 CFR 3101.1–2, Surface Use Rights, BLM may modify proposed operations at the APD stage to minimize adverse impacts to other resource values, land uses or users. A special lease notice will be applied to these parcels to mitigate potential conflicts with military operations.

Parcel WY-1502-045 in the Newcastle FO is in the unincorporated area of Osage, Wyoming. The more densely populated portion of the subdivision adjoins the parcel to the north, and a less dense area of the subdivision and the Osage Post Office are within the parcel. The Newcastle RMP/ROD (page 42) includes Special Resource Mitigation Guidelines designed to protect activities or surface uses. Lease Notice No. 1 is a standard condition of all leases, and provides a ¼ mile setback from occupied dwellings.

Parcel WY-1502-035 in the Newcastle FO includes a new home site constructed on the north side of Wyoming Highway 450, a few miles southwest of Newcastle. The Newcastle RMP/ROD (page 42) includes Special Resource Mitigation Guidelines designed to protect activities or surface uses. Lease Notice No. 1 is a standard condition of all leases, and provides a ¼ mile setback from occupied dwellings. The Newcastle FO recommended this parcel be deferred since this single 40-acre parcel would not provide the ¼ mile setback from an occupied dwelling in Lease Notice No.1. The HPD determined parcel WY-1502-035 is suitable for leasing in conformance with BLM policy. Lease Notice No. 1 provides a ¼ mile setback from occupied dwellings. Adherence to the setback may preclude occupancy of the lease parcel, but alternative techniques may make it possible to explore for and produce oil and gas from an off-lease location.

Parcel WY-1502-110 in the Newcastle FO is Federal land surface near the south edge of Keyhole Reservoir administered by the Bureau of Reclamation (BOR). The BLM manages the

underlying Federal minerals including leasing. Future drilling proposals will require consultation between the BLM, the BOR and the oil and gas operator.

3.3.4. Paleontology

Fossils generally are considered to be scientifically noteworthy if they are unique, unusual, rare, diagnostically or stratigraphically important, or add to the existing body of knowledge in a specific area of science. Most paleontological resources occur in sedimentary rock formations. Although experienced paleontologists generally can predict which formations may contain fossils and what types of fossils may be found based on the age of the formation and its depositional environment, predicting the exact location where fossils may be found is not possible. The BLM utilizes the Potential Fossil Yield Classification (PFYC) system to classify the potential to discover or impact important paleontological resources. The PFYC is based on the likelihood of geologic formations to contain important paleontological resources using a scale of 1 (very low potential) to 5 (very high potential). The PFYC is intended to help determine management and mitigation approaches for leasing and surface-disturbing activities. The potential for mitigation efforts is typically aimed at higher-potential formations (class 4 and 5).

The Upper Cretaceous Lance Formation (PFYC Class 5) can contain a diverse extinct fauna including tyrannosaurs and other theropods, ankylosaurs, hadrosaurs and other ornithopods, ceratopsians, and pachycephalosaurs, and pterosaurs, as well as a variety of mammals, reptiles, amphibians, birds, and fish. Portions of the formation are exposed within each of the three field offices and there have been numerous significant finds within the Newcastle FO.

Ten parcels nominated in the Newcastle FO occur within the Lance Creek Formation, and have stipulations applied.

3.3.5 Recreation and Special Management Areas

Recreational use of the available parcels and the surrounding areas is typically for hunting, fishing, camping, sightseeing, driving for pleasure, off-highway vehicle use, and other recreational activities. In the national survey of fishing, hunting and wildlife-associated recreation for activities in 2006, expenditures from fishing and hunting significantly increased. In Wyoming, more than 320,000 people participated in fishing and hunting in 2006. Additionally, 716,000 people participated in some form of wildlife watching (USFWS 2006 National Survey of Fishing, Hunting, and Wildlife Associated Recreation). The total number of hunting and fishing recreation use days in Wyoming in 2008 was 3,683,371. Based on the number of recreation days and average expenditure per day, hunters, anglers, and trappers expended approximately $685 million in pursuit of their sport (WGFD Annual Report 2008). Non-consumptive users provided about $420 million through wildlife watching, wildlife photography, etc. In total, wildlife associated recreation accounted for over $1 billion dollars in income to the state for the year 2008 (WGFD Annual Report 2008).

Special Management Areas elevate resources and associated uses and opportunities to a high priority to meet the objectives to maintain and enhance those specific resources. In accordance

with the BLM's *Land Use Planning Handbook*, the BLM has identified SRMAs to manage important recreational resources in the planning area. The primary objective of establishing SRMAs under recreation management zone guidance is to direct recreation program priorities toward areas with high resource values, elevated public concern, or large amounts of recreational activity.

Parcel WY-1502-190 in the Casper FO is within the BHMA. Bates Hole is a collective term for the area with boundaries of the Bates Creek and North Platte River-Bolton Creek watersheds. The area is located in southwestern Natrona County and extends into northern Carbon County. Approximately 288,504 acres of public land, including 158,023 public surface acres, fall within the BHMA boundary. The BHMA protects highly erosive soils, fragile watersheds, and crucial wildlife habitats within the proposed boundary. Parcel WY-1502-190 has CSUs applied for numerous resources including wildlife and watershed resources

Parcels WY-1502-191, WY-1502-192, WY-1502-193, and WY-1502-194 in the Casper FO are located in the WRBMA. The WRBMA was established in the Approved Casper RMP/ROD, and decision 7067 states:

> *"The Wind River Basin MA is established on a portion of the Wind River Basin with high and moderate oil and gas development potential (54,575 acres, of which 18,277 are federal surface). Oil and gas development is a priority in the area with minimum restrictions (as mapped in the Casper Field Office GIS database). New oil and gas leases in this area will be issued with standard stipulations only. Development will comply with nondiscretionary laws such as the ESA, the NHPA, etc., but the discretionary timing stipulations protecting sage-grouse nesting habitats, raptor nesting habitats, mountain plover nests, and crucial winter range will not be applied."*

All four parcels WY-1502-191, WY-1502-192-WY-1502-193, and WY-1502-194, were identified for deferral by the WSO because they are located in the Natrona Sage-grouse Core Area and meet the requirements of the Greater Sage-grouse Screen. The Casper FO recommended that these parcels be available for leasing because they are located entirely within the WRBMA. The WSO Greater Sage-grouse decision deferred these parcels and removed them from analysis until the WY Sage-grouse RMP Amendment is complete.

3.3.6 Socioeconomic Resources

In addition to the social and economic assessments and impact analyses located in the earlier referenced RMPs, this section will provide some updated data for the counties in which the lease sales are occurring. As mentioned previously the social and economic analysis area (analysis area) includes the following counties: Campbell, Converse, Crook, Goshen, Johnson, Natrona, Niobrara and Weston Counties. The below information provides a brief local context for this oil and gas lease sale EA. Please refer to the referenced RMPs for additional discussion on social and economic aspects of these counties.

The culture and community identities across the analysis area have been influenced by the opportunities that local natural resources provide for, especially for agricultural, energy

development, and recreational opportunities. Across the analysis area, 99 to 100 percent of the land area is categorized as rural; however, a majority of the population is categorized as urban for Campbell, Goshen, and Natrona Counties (Table 1) (U.S. Census, 2010a). In Natrona County the urban population is located in an urbanized area[1] whereas for the urban populations in the other counties, the urban population is scattered across urban clusters[2]. Crook and Niobrara Counties have 100 percent of their populations categorized as rural[3], while there is a majority of the population categorized as rural for Converse and Weston Counties. All of the counties of the analysis area have seen an increase in population from 2000 to 2010, with the largest increase occurring in Campbell County and the smallest increase occurring in Niobrara County (Table 2) (U.S. Census, 2010b). [1]

Table 3.4 Urban and Rural Population and Area

County	Population		Area (square meters)	
	Percent Urban	Percent Rural	Percent Urban	Percent Rural
Campbell County	70.9%	29.1%	0.5%	99.5%
Converse County	44.6%	55.7%	0.1%	99.9%
Crook County	0.0%	100.0%	0.0%	100.0%
Goshen County	54.0%	46.0%	0.2%	99.9%
Johnson County	51.0%	49.0%	0.1%	99.9%
Natrona County	85.6%	14.5%	0.6%	99.4%
Niobrara County	0.0%	100.0%	0.0%	100.0%
Weston County	45.5%	54.6%	0.1%	99.9%

[1]U.S. Census 2010a

Table 3.5 Analysis Area Counties Population and Median Age

	2000 Census		2010 Census		% Change in Population 2000 to 2010
	Total Population	Median Age	Total Population	Median Age	
Campbell County	33,698	32.2	46,133	31.9	36.9%
Converse County	12,052	37.5	13,833	39.0	14.8%
Crook County	5,887	40.2	7,083	43.6	20.3%
Goshen County	12,538	40.0	13,249	43.6	5.7%
Johnson County	7,075	43.0	8,569	44.8	21.1%
Natrona County	66,533	36.4	75,450	36.8	13.4%
Niobrara County	2,407	42.8	2,484	46.1	3.2%
Weston County	6,644	40.7	7,208	42.3	8.5%
Total Analysis Area	146,834	na	174,009	na	18.5%

[1]U.S. Census 2010b

The HPD provides productive rangelands for grazing thus contributing to the agricultural industry in the area. Additionally, agricultural opportunities are reflected by statistics on the acreage of land in farms and value of agricultural products sold. Across the analysis area there are 3,534 farms, 14,555,242 acres of land in farms and $400,637,000 in the market value of agricultural products sold (Table 3) (NASS, 2007). Although Goshen County does not have the

most acreage of land in farms, it does have the most number of farms and provided 42 percent of the market value of agricultural products sold in the total analysis area. Additionally, across the 23 counties in Wyoming, Goshen County ranks number one in the market value of agricultural products sold. Crook and Campbell Counties also rank high in the market value of agricultural products sold at 9th and 10th respectively. This information helps convey the importance of agriculture to the analysis area and to the State of Wyoming as a whole.

Table 3.6 Analysis Area Agricultural Statistics

	Land in Farms (acres)	# of Farms	Market Value of Agricultural Products Sold	State Rank of Total Value of Agricultural Products Sold
Campbell County	2,345,915	633	$40,140,000	10
Converse County	2,366,020	435	$34,753,000	15
Crook County	1,569,912	457	$43,983,000	9
Goshen County	1,368,342	815	$157,512,000	1
Johnson County	1,946,197	319	$27,987,000	18
Natrona County	2,181,451	403	$32,704,000	16
Niobrara County	1,449,111	235	$37,057,000	12
Weston County	1,328,294	237	$26,501,000	20
Total Analysis Area	14,555,242	3534	$400,637,000	na

[1]NASS, 2007

Energy development is also important to the analysis area. In 2011 HPD produced 37 percent of the total amount of oil produced in Wyoming and 7 percent of the gas (WYOGCC, 2012). Furthermore, the mining sector[4] accounted for 25 percent of the private non-farm employment[5] in 2011 (BEA, 2012a). The revenue generated from oil and gas production as well as the associated employment contributes to the local economies. In addition to revenues from oil and gas production, the sale of oil and gas leases also provides revenue for local economies. The money from the sales of leases goes to the Office of Natural Resources Revenue which manages all revenue from mineral onshore and offshore leases. The Federal government retains a percentage of the revenues and the remainder is disbursed back to the state in which the leases were sold. Each state determines the amount to retain and how much to disburse to the counties in which the leases were sold. This data is retained by the Office of Natural Resources Revenue and the Wyoming Department of Revenue and has been requested; however, we have not yet received this data.[1]

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[1]Urbanized areas refer to areas of 50,000 or more people (U.S. Census 2012a).

[2]Urban clusters are areas of at least 2,500 people and less than 50,000 people (U.S. Census 2012a).

[3]All other population, housing, and areas are not included.

[4]The mining sector as defined for the North American Industry Classification System (NAICS) comprises "establishments that extract naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude

3.3.7 Water Resources

Surface water

Surface water hydrology within the area is typically determined by geology, soil characteristics, precipitation, and water erosion. Factors that affect surface water resources include livestock grazing management, private, commercial and industrial development, recreational use, drought, and vegetation control treatments.

Groundwater

The groundwater resources in the lease sale area are dependent upon the geologic outcrops that are present in each watershed. The groundwater resources and their protection are administered by the WDEQ under authority from the EPA. In addition to other agencies requirements, ground water protection restrictions would be applied according to the most recent applicable BLM RMP for each field office. Common aquifers encountered in the district include shallow unconfined surficial aquifers, which regionally are those that are the most susceptible to surface contamination. These aquifers are generally located within alluvial deposits along the major tributaries and rivers in each watershed. Other confined aquifers that are encountered are from various sandstone and limestone formations of the Tertiary, Cretaceous, and Paleozoic periods. All fresh water zones that are encountered during drilling are isolated for protection and reported to the BLM. Information contained in Appendix G, Hydraulic Fracturing White Paper, Section II, Operational Issues/Water Availability and Consumption (page 4 and Attachment 1), is incorporated by reference.

Parcels WY-1502-190 and WY-1502-191 within the Casper FO have stipulations applied to Class I or II water resources.

3.3.8 Visual Resources Management

The BLM VRM Class objectives are as follows:

> Class I: to preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.

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petroleum; and gases, such as natural gas" (U.S. Census, 2012c).

[5]Private non-farm employment is wage and salary employment excluding farm employment and government employment (BEA, 2012b).

Class II: to retain the existing landscape character and the level of change to the characteristic landscape should be low. Management activities should not attract the attention of the casual observer. Changes would be required to repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Modification to a proposal would be required if the proposed changes cannot be adequately mitigated to retain the character of the landscape.

Class III: to partially retain existing landscape character. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate a casual observer's view. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV: to provide the management activities which require major modification of the existing landscape character. Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements.

VRM Classifications only apply to BLM-administered surface estate, and therefore do not apply to non-BLM surface within the VRM classification areas. There are no parcels nominated in the February 2015 Oil & Gas Lease Sale that are managed under VRM Class I or Class II objectives. All parcels nominated in the February 2015 Lease Sale are located in Class III or IV, with the majority in VRM Class IV. The scenic quality rating units contain different landscapes exhibiting high and low degrees of natural elements of form, line, color and texture. All rating units contain landscape modifications that impair the natural scenic quality.

3.3.9 Wildlife and Special Status Species (Plants and Animals)

3.3.9.1. Bald Eagle

In 1978, the bald eagle *(Haliaeetus leucocephalus)* was federally listed as endangered under the Endangered Species Act (ESA) in all of the continental United States except for Minnesota, Wisconsin, Michigan, Oregon, and Washington. In those states, the bald eagle was listed as threatened. In 1995, the eagle's status was changed to threatened throughout the United States. Species-wide populations have recovered from earlier declines, and the bald eagle was proposed for de-listing in 1999 and de-listed in 2007. The bald eagle is currently protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668) and the Migratory Bird Treaty Act (16 U.S.C. 703). It is currently listed as a sensitive species for the BLM in Wyoming. Bald eagle nesting and winter roosting habitat can be found throughout the HPD.

3.3.9.2. Big Game

Winter range is a crucial factor in the health and survival of big game herds. The availability of good winter range where big game can find shelter and adequate food means the difference between strong populations or a herd weakened by starvation and at increased risk for disease and predation. Disturbance of animals on winter range by people and motor vehicles, and the

loss of winter range from development can heavily impact big game animals during winter.

The availability of parturition areas are also important factors in the health and survival of big game animals. These areas are generally used in the spring and have higher quality vegetation available to meet the greater nutritional demands of pregnant and lactating females. They also tend to have greater amounts of thermal and hiding cover, depending on the species, to protect animals from predation and weather. Disturbance by humans on parturition areas can greatly impact survival of newborn animals.

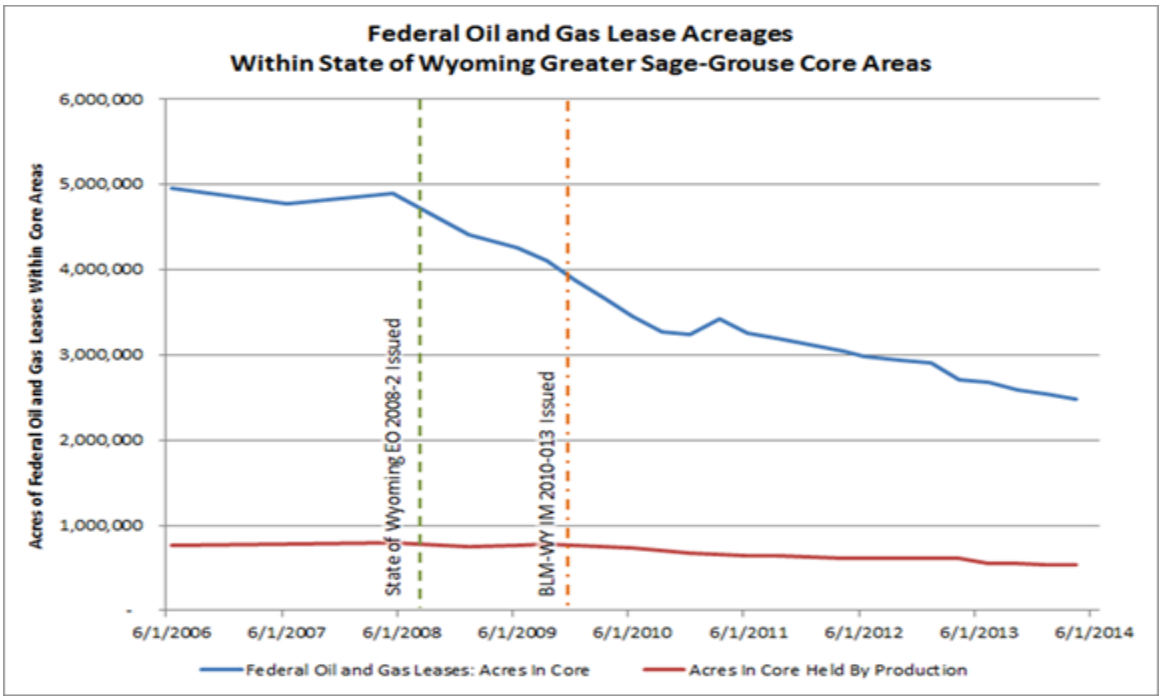
3.3.9.3. Greater Sage-grouse

The Greater Sage-grouse is a candidate species for listing under provisions of the ESA as determined by the FWS 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 HPD. Nesting and brood-rearing habitat is sometimes associated with the lek and sometimes found at a distance from the lek in sagebrush habitat. Within the HPD there are approximately 3,624,598 acres of Greater Sage-grouse core areas (version 3) that occur on public, private, state, and other Federal lands. Greater Sage-grouse core areas designated by the State of Wyoming have been established to help conserve Greater Sage-grouse populations and associated habitats. The BLM is currently in the process of refining management policy for implementing the core area strategy. RMP amendments are being developed to provide additional protections for Core/Connectivity Area habitats and further limit degradation and fragmentation from human activity. The WGFD has identified core areas which represent these relatively productive areas and have suggested special management for these areas.

New information regarding the status of the Greater Sage-grouse has elevated its status to a Federal candidate species. Policy was issued by the Wyoming BLM in February 2012 under Instruction Memorandum No. WY-2012-019, additional policy was issued by the Washington Office BLM under Instruction Memorandum No. 2010-071

The following chart shows the number of acres of Federal leases in Sage-grouse Core Areas from 2006 through 2014.

Figure 3.4



3.3.9.4. Sharp-tailed Grouse

Sharp-tailed grouse is an upland bird species present in the HPD. Sharp-tailed grouse are a lekking and ground-nesting species dependent on grassland and shrubland habitats.

3.3.9.5. Raptors

Raptors include eagles, hawks, owls, falcons, and vultures. Ten species of raptors and five species of owls are known or suspected to occur within the HPD. Nine of the 10 raptor species breed in Wyoming; the remaining specie—the rough-legged hawk—is a winter resident. Four of the owl species are year-round residents in the state, while the snowy owl is a winter resident only. Raptors can be found collectively in all vegetative types in the HPD.

3.3.9.6. Threatened and Endangered and BLM Sensitive Species

Section 7 of the ESA 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 with the FWS is required on any action proposed by the BLM or another Federal agency that affects a listed species or that jeopardizes or modifies critical habitat.

The BLM's Special Status Species Policy outlined in BLM Manual 6840, Special Status Species Management, is to conserve listed species and the ecosystems on which they depend, and to ensure that actions authorized or carried out by the 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 plants and animals 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. The policy for Federal candidate species and BLM sensitive species is to ensure that no action that requires Federal approval should contribute to the need to list a species as threatened or endangered.

Other management direction is based on RMP management objectives, activity level plans, and other aquatic habitat and fisheries management direction, including 50 CFR 17, and the BLM's Land Use Planning Handbook, Appendix C, Part E, Fish and Wildlife.

Black-Footed Ferret

The black-footed ferret (*Mustela nigripes*) was first listed as endangered on March 11, 1967, as a precursor to the ESA of 1973. Black-footed ferrets are almost exclusively associated with prairie dogs and prairie dog towns. In addition to using prairie dogs as a food source, black-footed ferrets utilize prairie dog burrows for shelter, breeding, and brood-rearing. The size and density of prairie dog towns may be the most important factors comprising suitable habitats for black-footed ferrets. Black-footed ferrets are not normally found in black-tailed prairie dog towns or complexes less than 80 acres in size, or in white-tailed prairie dog towns or complexes less than 200 acres in size (BLM 2005a).

On March 6, 2013, the FWS issued a letter acknowledging 'block clearance' for the State of Wyoming in response to a request from the WGFD. This letter provides acknowledgement that the likelihood of identifying wild ferrets in Wyoming, outside of those resulting from reintroductions, is distinctly minimal. Consequently, the Service no longer recommends surveys for the black-footed ferret in either black- or white-tailed prairie dog towns in the State of Wyoming. The Service recommends that project proponents and Federal land management agencies protect all prairie dog towns or complexes for their value to the prairie ecosystem and the many species that rely on them.

Blowout Penstemon

The blowout penstemon is endangered at the Federal level based on its restricted distribution to open, early-successional habitat and regional endemic range in the Nebraska Sandhills Prairie and the Great Divide Basin in Wyoming. Habitat for blowout penstemon consists of early successional sand dunes and blowouts. Critical habitat for the blowout penstemon is not designated within the HPD.

Canada Lynx

The Canada lynx is an ESA threatened species. Habitat for lynx is provided by subalpine coniferous forests of mixed age and structural classes of vegetation that also provide habitat for their primary prey, the snowshoe hare. Canada lynx is believed to occur in the Bighorn Mountains of Johnson and Sheridan counties; however, no critical habitat has been delineated in the HPD.

Colorado Butterfly Plant

The Colorado butterfly plant is a member of the Evening primrose family and is currently listed as threatened under the ESA. The plant is found in southeastern Wyoming, north-central Colorado, and extreme western Nebraska. The Colorado butterfly plant is typically found in wetlands habitats along meandering stream channels on the high plains.

Northern Long-Eared Bat

The Northern long-eared bat was proposed for listing under the ESA as an endangered species on October 2, 2013. Northern long-eared bats are found throughout eastern and central North America and occur in the extreme northeast of Wyoming (Campbell, Crook, and Weston counties). Critical habitat has not yet been proposed.

Preble's Meadow Jumping Mouse

The Preble's meadow jumping mouse is a subspecies of meadow jumping mouse, endemic to Colorado and Wyoming. It is found nowhere else in the world. It is listed as threatened under the ESA in Colorado, but was removed from ESA protections in Wyoming on July 10, 2008. On August 4, 2011, its protection under the ESA was reinstated in Wyoming. In the HPD, it is known to occur in Platte, Goshen, and Converse counties. Typical habitat for Preble's is comprised of well-developed plains riparian vegetation with adjacent, relatively undisturbed grassland communities and a nearby water source. These riparian areas include a relatively dense combination of grasses, forbs, and shrubs. Preble's are known to regularly range outward into adjacent uplands to feed and hibernate.

Species Affected by North Platte River Drainage

Several T&E species listed under the ESA rely on habitats found within the Platte River System. Platte River species include the whooping crane, least tern, piping plover, pallid sturgeon, and western prairie fringed orchid. Impacts to these species should be considered when proposed actions may lead to consumptive use of water or affect water quality downstream in the Platte River. Platte River Species Critical Habitat has been delineated in Converse, Goshen, Natrona, Niobrara, and Platte counties within the HPD.

Ute Ladies'-Tresses

The Ute ladies'-tresses is an ESA threatened species. The Ute ladies'-tresses, is a local endemic known to occur in Converse, Goshen, and Niobrara counties. More than 50 percent of the continental range of this species occurs in Wyoming. Habitat for this perennial orchid includes riparian and wet meadow habitats.

Chapter 4

ENVIRONMENTAL IMPACTS

4.1 Introduction

As previously stated, the issuance of oil and gas leases is an administrative action. Nominated leases are reviewed and stipulations are attached (see Common to All Alternatives Section below) to ensure that leasing is in conformance with the approved land use plan. On-the-ground impacts would occur only after a nominated parcel is sold, a subsequent lease is issued, and the lessee applies for and receives approval to conduct activities on the lease.

The BLM cannot determine at the leasing stage whether or not a proposed parcel will actually be sold and, if it is sold and a lease is issued, whether or not the lease would be explored or developed. Because well location(s) cannot be determined at this point, the impacts discussed in this chapter are not site-specific. Additional site-specific NEPA analysis would be conducted at the time an APD or facility application is submitted and would provide site-specific analysis for that well location or facility. Additional conditions of approval (mitigation) may be applied at that time.

According to the Tenth Circuit Court of Appeals, site-specific NEPA analysis at the leasing stage may not be possible absent concrete development proposals. Whether such site-specific analysis is required depends upon a fact-specific inquiry. Often, where environmental impacts remain unidentifiable until exploration can narrow the range of likely drilling sites, filing an APD may be the first useful point at which a site-specific environmental analysis can be undertaken (Park County Resource Council, Inc. v. U.S. Department of Agriculture, 10th Cir., April 17, 1987). In addition, the Interior Board of Land Appeals (IBLA) has ruled that, "BLM is not required to undertake a site-specific environmental review prior to issuing an oil and gas lease when it previously analyzed the environmental consequences of leasing the land…" (Colorado Environmental Coalition, et. al, IBLA 96-243, decided June 10, 1999). However, when site-specific impacts are reasonably foreseeable at the leasing stage, NEPA requires the analysis and disclosure of such reasonably foreseeable site-specific impacts (N.M. ex rel. Richardson v. BLM, 565 F.3d 683, 718-19 (10th Cir. 2009). The BLM has not received any development proposals concerning the lease parcels addressed in this EA.

Lands and Realty, Water Resources, and VRM were found to not have any impacts if the proper stipulations were attached as directed from the appropriate RMP in Section 4.2, Common to All Alternatives. Since the following discussion concerns the deferral or offer of each parcel by alternative and none of these resources affect that determination, these resources will not be analyzed further beyond Section 4.2.

Table 4.1 below is a comparison of the parcels offered by alternative. It is provided here as a reference for the discussions in the rest of this chapter.

Table 4.1 Comparison of Parcels Offered in Alternatives A, B, and C

Offered	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Alternative A	0	0	0
Alternative B	139	149,548	20,493
Alternative C	165	188,486	31,820

4.2 Common to All Alternatives

The following stipulations will be applied to the noted lease parcels in all alternatives. Three categories of stipulations are used in the following sections. No Surface Occupancy (NSO) is the most stringent. Under an NSO, use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect identified resource values. Controlled Surface Use (CSU) is less stringent. Under a CSU, use and occupancy is allowed (unless restricted by another stipulation) but identified resource values require special operational constraints that may modify the lease rights. CSU is used for operating guidance, not as a substitute for the NSO or Timing stipulations. Timing Limitation Stipulations (TLS) prohibit surface use during specified time periods to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrates the continued need for such mitigation and that less stringent, project specific mitigation measures would be insufficient.

4.2.1 Heritage Resources

Reviews of individual RMPs revealed that protective stipulations need to be applied to historic properties within proposed lease parcels described below:

Parcels WY-1502-028, WY-1502-030, WY-1502-031, WY-1502-033, WY-1502-034 and WY-1502-036 in the Newcastle FO have the following CSU applied:

> *CSU (1) Surface occupancy or use within the visual horizon of the trail, particularly within the near distance, may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting cultural and scenic values of the Cheyenne-Deadwood Trail.*

4.2.2 Paleontology

Ten parcels within the Newcastle FO have the following stipulation attached to mitigate paleontological resources. These parcels are WY-1502-028, WY-1502-036, WY-1502-037, WY-1502-038, WY-1502-039, WY-1502-040, WY-1502-048, WY-1502-049, WY-1502-071, and WY-1502-072.

> *CSU (1) Surface occupancy or use may be restricted or prohibited if paleontological sites exist unless paleontological sites are avoided or the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped*

on the Newcastle Field Office GIS database; (3) protecting Lance Creek Fossil Area paleontological values.

4.2.3 Recreation and Special Management Area

Parcel WY-1502-190 in the Casper FO has the following stipulations applied protecting the BHMA and North Platte River Special Recreation Management Area (SRMA):

CSU (1) Surface occupancy or use within the Bates Hole MA Area will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Casper Field Office GIS database; (3) protecting steep slopes, visual resources, recreational, watershed, cultural, and wildlife values.

NSO (1) as mapped on the Casper Field Office GIS database; (2) protecting the North Platte River SRMA.

4.2.4 Water Resources

<u>Surface Water</u>

Parcel WY-1502-190 in the Casper FO has the following stipulation applied:

CSU (1) Surface occupancy or use within 1/4 mile of Class I and Class II waters may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Casper Field Office GIS database; (3) protecting Class I and Class II waters of the North Platte River.

Parcel WY-1502-191 in the Casper FO has the following stipulations applied:

NSO (1) As mapped on the Casper Field Office GIS database; (2) protecting Class I and Class II waters within 500 feet of Wallace Creek.

CSU (1) Surface occupancy or use within 500 feet to 1/4 mile of Class I and Class II waters may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Casper Field Office GIS database; (3) protecting Class I and Class II waters of Wallace Creek.

4.2.5 Wildlife and Special Status Species (Plants and Animals)

The current RMPs have evaluated the need to protect habitat necessary for the success of species identified through applicable laws, regulations and policies.

4.2.5.1. Bald Eagle

Parcels WY-1502-178, WY-1502-179, WY-1502-180 and WY-1502-188 in the Buffalo FO have the following stipulation applied:

> *TLS (1) Nov 1 to Apr 1; (2) as mapped on the Buffalo Field Office GIS database; (3) protecting Bald Eagle Winter Roosting Habitat.*

Parcel WY-1502-135 in the Casper FO has the following stipulation applied:

> *NSO (1) as mapped on the Casper Field Office GIS database; (2) protecting the Miller Hills Roost.*

Parcel WY-1502-190 in the Casper FO has the following stipulation applied:

> *CSU (1) Surface occupancy or use within ¼ mile of the Bald Eagle Concentration Feeding Areas 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 Casper Field Office GIS database; (3) protecting Bald Eagle Feeding Areas.*

Parcels WY-1502-027 and WY-1502-033 in the Newcastle FO have the following stipulations applied:

> *TLS (1) Nov 1 to April 1; (2) as mapped on the Newcastle Field Office GIS database; (3) protecting wintering bald eagles.*
>
> *CSU (1) Surface occupancy or use within ½ mile of bald eagle winter roosts 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 Newcastle Field Office GIS database; (3) protecting wintering bald eagles.*

4.2.5.2. Big Game

Parcel WY-1502-166 in the Buffalo FO has the following stipulation applied:

> *TLS (1) May 1 to Jun 30; (2) as mapped on the Buffalo Field Office database; (3) protecting big game during parturition.*

4.2.5.3. Greater Sage-grouse

Table 4.2 contains a list of parcels with Greater Sage-grouse stipulations.

Table 4.2 February 2015 Oil and Gas Lease Parcels with Greater Sage-grouse Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1502-017	NFO 1	NFO
WY-1502-018	NFO 1	NFO
WY-1502-019	NFO 1, NFO 2	NFO
WY-1502-020	NFO 1	NFO
WY-1502-021	NFO 1, NFO 2	NFO
WY-1502-022	NFO1, NFO 2	NFO
WY-1502-034	NFO 1	NFO
WY-1502-044	NFO 1	NFO
WY-1502-046	NFO 1	NFO
WY-1502-050	NFO 1	NFO
WY-1502-051	NFO 1	NFO
WY-1502-055	NFO 1	NFO
WY-1502-057	NFO 1, NFO 2	NFO
WY-1502-058	NFO 1, NFO 2	NFO
WY-1502-059	NFO 1, NFO 2	NFO
WY-1502-060	NFO 1	NFO
WY-1502-061	NFO 1	NFO
WY-1502-064	NFO 1	NFO
WY-1502-070	NFO 1	NFO
WY-1502-073	NFO 1	NFO
WY-1502-074	NFO 1	NFO
WY-1502-075	NFO 1	NFO
WY-1502-076	NFO 1	NFO
WY-1502-079	NFO 1	NFO
WY-1502-080	NFO 1	NFO
WY-1502-081	NFO 1	NFO
WY-1502-082	NFO 1	NFO
WY-1502-084	NFO 1	NFO
WY-1502-085	NFO 1	NFO
WY-1502-090	NFO 1, NFO 2	NFO
WY-1502-091	NFO 1, NFO 2	NFO
WY-1502-092	NFO 1, NFO 2	NFO
WY-1502-093	NFO 1	NFO
WY-1502-094	NFO 1	NFO
WY-1502-095	NFO 1	NFO
WY-1502-097	NFO 1	NFO
WY-1502-098	NFO 1	NFO
WY-1502-099	NFO 1	NFO

Parcel Number	Stipulation(s)	Field Office
WY-1502-100	NFO 1	NFO
WY-1502-101	NFO 1	NFO
WY-1502-102	CFO 1	CFO
WY-1502-103	NFO 1	NFO
WY-1502-108	NFO 1	NFO
WY-1502-109	NFO 1	NFO
WY-1502-114	NFO 1	NFO
WY-1502-115	NFO 1, NFO 2	NFO
WY-1502-116	NFO 1, NFO 2	NFO
WY-1502-117	NFO 1	NFO
WY-1502-118	NFO 1	NFO
WY-1502-119	NFO 1, NFO 2	NFO
WY-1502-120	NFO 1, NFO 2	NFO
WY-1502-121	NFO 1, NFO 2	NFO
WY-1502-122	NFO 1	NFO
WY-1502-123	NFO 1	NFO
WY-1502-124	NFO 1	NFO
WY-1502-137	CFO 1	CFO
WY-1502-143	NFO 1	NFO
WY-1502-144	NFO 1	NFO
WY-1502-145	NFO 1	NFO
WY-1502-146	NFO 1	NFO
WY-1502-149	NFO 1	NFO
WY-1502-158	NFO 1	NFO
WY-1502-159	NFO 1	NFO
WY-1502-161	NFO 1	NFO
WY-1502-162	NFO 1	NFO
WY-1502-165	CFO 1	CFO
WY-1502-166	BFO 1	BFO
WY-1502-168	BFO 1	BFO
WY-1502-169	BFO 1, BFO 2	BFO
WY-1502-170	BFO 1	BFO
WY-1502-171	BFO 1	BFO
WY-1502-172	BFO 1	BFO
WY-1502-176	BFO 1	BFO
WY-1502-177	BFO 1, BFO 2	BFO
WY-1502-190	CFO 2 CFO 3	CFO

The following stipulations apply to Table 4.2:

BFO 1 - TLS (1) Mar 15 to Jul 15; (2) as mapped on the Buffalo Field Office GIS database; (3) protecting nesting Greater Sage-grouse.

BFO 2 - 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 Buffalo Field Office GIS database; (3) protecting Centrocercus urophasianus (Greater sage-grouse).

CFO 1 - TLS (1) Mar 15 to Jul 15; (2) as mapped on the Casper Field Office GIS database; (3) protecting nesting Greater Sage-grouse.

CFO 2 - TLS (1) Mar 15 to Jul 15; (2) as mapped on the Casper Field Office GIS database; (3) protecting nesting Greater sage grouse in the Bates Hole and Fish Creek/Willow Creek area.

CFO 3 – CSU (1) Surface occupancy or use within greater than 10% sagebrush canopy cover may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Casper Field Office GIS database; (3) protecting Bates Hole and Fish Creek/Willow Creek area Greater sage grouse nesting habitat.

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

NFO 2 - 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 Newcastle Field Office GIS database; (3) protecting Greater Sage-grouse breeding habitat.

4.2.5.4. Sharp-tailed Grouse

Parcel WY-1502-172 in the Buffalo FO has the following stipulation applied:

TLS (1) Mar 1 to Jun 30; (2) as mapped on the Buffalo Field Office GIS database; (3) protecting nesting Sharp-tailed grouse.

Parcels WY-1502-083, WY-1502-084, WY-1502-085, WY-1502-086, WY-1502-87, WY-1502-088, WY-1502-089, WY-1502-095, WY-1502-096, WY-1502-113, WY-1502-114, WY-1502-115 and WY-1502-116 in the Newcastle FO have the following stipulations applied:

TLS (1) Mar1 to Jun 30; (2) as mapped on the Newcastle Field Office GIS database; (3) protecting nesting Sharp-tailed grouse.

Parcels WY-1502-083, WY-1502-088 and WY-1502-089 in the Newcastle FO have the following additional stipulation:

CSU (1) Surface occupancy or use within ¼ mile of a Sharp-tailed grouse strutting/dancing ground will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Newcastle Field Office GIS database; (3) protecting Sharp-tailed grouse breeding habitat.

4.2.5.5. Raptors

Table 4.3 contains a list of parcels with raptor stipulations.

Table 4.3 February 2015 Oil and Gas Lease Parcels with Raptor Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1502-001	NFO 1	NFO
WY-1502-002	NFO 1	NFO
WY-1502-004	NFO 1	NFO
WY-1502-005	NFO 1	NFO
WY-1502-006	NFO 1	NFO
WY-1502-007	NFO 1	NFO
WY-1502-008	NFO 1	NFO
WY-1502-009	NFO 1	NFO
WY-1502-010	NFO 1	NFO
WY-1502-011	NFO 1	NFO
WY-1502-012	NFO 1	NFO
WY-1502-013	NFO 1	NFO
WY-1502-014	NFO 1	NFO
WY-1502-015	NFO 1	NFO
WY-1502-016	NFO 1	NFO
WY-1502-017	NFO 1	NFO
WY-1502-018	NFO 1	NFO
WY-1502-019	NFO 1	NFO
WY-1502-020	NFO 1	NFO

Parcel Number	Stipulation(s)	Field Office
WY-1502-085	NFO 1	NFO
WY-1502-086	NFO 1	NFO
WY-1502-087	NFO 1	NFO
WY-1502-088	NFO 1	NFO
WY-1502-089	NFO 1	NFO
WY-1502-090	NFO 1	NFO
WY-1502-091	NFO 1	NFO
WY-1502-092	NFO 1	NFO
WY-1502-093	NFO 1	NFO
WY-1502-094	NFO 1	NFO
WY-1502-095	NFO 1	NFO
WY-1502-096	NFO 1	NFO
WY-1502-097	NFO 1	NFO
WY-1502-098	NFO 1	NFO
WY-1502-099	NFO 1	NFO
WY-1502-100	NFO 1	NFO
WY-1502-101	CFO 1, NFO 1	CFO,NFO
WY-1502-103	NFO 1	NFO
WY-1502-109	NFO 1	NFO

WY-1502-021	NFO 1	NFO
WY-1502-022	NFO 1	NFO
WY-1502-023	NFO 1	NFO
WY-1502-024	NFO 1	NFO
WY-1502-025	NFO 1	NFO
WY-1502-027	NFO 1	NFO
WY-1502-028	NFO 1	NFO
WY-1502-029	NFO 1	NFO
WY-1502-030	NFO 1	NFO
WY-1502-031	NFO 1	NFO
WY-1502-032	NFO 1	NFO
WY-1502-033	NFO 1	NFO
WY-1502-034	NFO 1	NFO
WY-1502-036	NFO 1	NFO
WY-1502-037	NFO 1	NFO
WY-1502-038	NFO 1	NFO
WY-1502-039	NFO 1	NFO
WY-1502-040	NFO 1	NFO
WY-1502-046	NFO 1	NFO
WY-1502-047	NFO 1	NFO
WY-1502-048	NFO 1	NFO
WY-1502-049	NFO 1	NFO
WY-1502-050	NFO 1	NFO
WY-1502-051	NFO 1	NFO
WY-1502-055	NFO 1	NFO
WY-1502-056	NFO 1	NFO
WY-1502-057	NFO 1	NFO
WY-1502-058	NFO 1	NFO
WY-1502-059	NFO 1	NFO
WY-1502-060	NFO 1	NFO
WY-1502-064	NFO 1	NFO
WY-1502-065	NFO 1	NFO
WY-1502-066	NFO 1	NFO
WY-1502-067	NFO 1	NFO
WY-1502-068	NFO 1	NFO
WY-1502-069	NFO 1	NFO
WY-1502-070	NFO 1	NFO
WY-1502-071	NFO 1	NFO
WY-1502-073	NFO 1	NFO
WY-1502-074	NFO 1	NFO
WY-1502-075	NFO 1	NFO
WY-1502-076	NFO 1	NFO
WY-1502-077	NFO 1	NFO
WY-1502-078	NFO 1	NFO
WY-1502-079	NFO 1	NFO
WY-1502-080	NFO 1	NFO
WY-1502-081	NFO 1	NFO
WY-1502-082	NFO 1	NFO
WY-1502-083	NFO 1	NFO
WY-1502-084	NFO 1	NFO

WY-1502-111	NFO 1	NFO
WY-1502-112	NFO 1	NFO
WY-1502-113	NFO 1	NFO
WY-1502-114	NFO 1	NFO
WY-1502-115	NFO 1	NFO
WY-1502-116	NFO 1	NFO
WY-1502-117	NFO 1	NFO
WY-1502-118	NFO 1	NFO
WY-1502-119	NFO 1	NFO
WY-1502-120	NFO 1	NFO
WY-1502-121	NFO 1	NFO
WY-1502-122	NFO 1	NFO
WY-1502-123	NFO 1	NFO
WY-1502-124	NFO 1	NFO
WY-1502-130	NFO 1	NFO
WY-1502-132	CFO 1	CFO
WY-1502-134	CFO 1	CFO
WY-1502-135	CFO 1	CFO
WY-1502-137	CFO 1	CFO
WY-1502-140	NFO 1	NFO
WY-1502-141	NFO 1	NFO
WY-1502-142	NFO 1	NFO
WY-1502-143	NFO 1	NFO
WY-1502-144	NFO 1	NFO
WY-1502-145	NFO 1	NFO
WY-1502-146	NFO 1	NFO
WY-1502-147	NFO 1	NFO
WY-1502-148	NFO 1	NFO
WY-1502-149	NFO 1	NFO
WY-1502-150	NFO 1	NFO
WY-1502-151	NFO 1	NFO
WY-1502-152	NFO 1	NFO
WY-1502-153	NFO 1	NFO
WY-1502-154	NFO 1	NFO
WY-1502-155	NFO 1	NFO
WY-1502-156	NFO 1	NFO
WY-1502-158	NFO 1	NFO
WY-1502-159	NFO 1	NFO
WY-1502-161	NFO 1	NFO
WY-1502-162	NFO 1	NFO
WY-1502-166	BFO 1	BFO
WY-1502-167	BFO 1	BFO
WY-1502-170	BFO 1	BFO
WY-1502-176	BFO 1	BFO
WY-1502-177	BFO 1	BFO
WY-1502-184	CFO 1	CFO
WY-1502-188	BFO 1	BFO
WY-1502-189	CFO 1	CFO
WY-1502-190	CFO 1, CFO 2	CFO

The following stipulations apply to Table 4.3:

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

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

CFO 2 – TLS (1) Feb 1 to Jul 31; (2) as mapped on the Casper Field Office GIS database; (3) protecting nesting Raptors within ½ mile of an Artificial Nesting Structure.

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

4.2.5.6. Threatened and Endangered and BLM Sensitive Species

The following Special Lease Stipulation No. 2 is applied to all parcels:

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. The 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. The 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.

4.3 Direct and Indirect Impacts

Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and occur later in time or farther removed in distance but are still reasonably foreseeable.

4.3.1 Air Resources

4.3.1.1 Air Quality

4.3.1.1.1 Alternative A – No Action

Under the No Action Alternative, none of the 165 parcels in the HPD would be offered for sale. No oil and gas development would occur on these parcels. Ongoing oil and gas

development would continue on surrounding Federal, private, and state leases.

A decision not to offer the 165 parcels for sale would not affect existing uses of these parcels. The parcels are used primarily for livestock grazing, with some dispersed recreation such as hunting and hiking. These uses typically entail vehicle travel for access and that would be expected to continue at current rates.

Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from this sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.3.1.1.2 Alternative B – Proposed Action

Offering 139 parcels for competitive sale would have no direct impacts to air quality. Any potential effects to air quality would occur when the leases were sold and subsequently developed. APD permitting trends within the HPD varies among the three field offices.

Over the last 10 years including 2010, leasing Federal oil and gas mineral estate has resulted in a total of 13,436 APDs approved in the Buffalo FO, 882 APDs in Casper FO, and 327 APDs in the Newcastle FO. A total of 14,645 APDs have been approved in the HPD over these last ten years for an annual average of 1,465 APDs; 1,344 APDs per year in Buffalo FO, 88 APDs per year in Casper FO and 33 APDs per year in Newcastle FO. As of 2010, there are over 39,000 producing wells in the HPD consisting of: Buffalo FO with over 31,000, Casper FO with over 5,000 and Newcastle FO with over 3,000. Coalbed natural gas development accounts for a large proportion of the APDs approved within the HPD, specifically within the Buffalo FO, since the late 1990s. Appendix G, Hydraulic Fracturing White Paper, Section II, Operational Issues/Gas emissions (page 2) is incorporated by reference.

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, dehydration and separation facilities, and volatile organic compounds during drilling or production activities. The amount of increased emissions cannot be quantified 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 would also vary according to the characteristics of the geologic formations from which production would occur. Emissions of all regulated pollutants under the Clean Air Act would be evaluated by the WDEQ and, in some instances, by the BLM at the time that a specific development project is proposed.

It is not known whether the petroleum resources specific to the leases in the Proposed Action are gas or oil, or a combination thereof. The density of drilling locations depends upon the technology feasible and available (vertical, directional, or horizontal), and the geology of the hydrocarbon-bearing zone. As a result, the specific numbers of wells that could potentially be drilled as a result of the sale of the nominated parcels and subsequent issuance of leases is

unknown. However, the RFD considers these assumptions and, on a field office-wide basis, is still valid for both the Buffalo and Casper FOs. Newcastle FO does not have an RFD for their RMP.

4.3.1.1.3 Alternative C – Offer All Parcels for Sale

Under Alternative C, all 165 parcels would be offered for competitive sale in February 2015 and subsequent leases would be issued with the aforementioned stipulations. However, the larger acreage under Alternative C could increase the opportunity for surface-disturbing activities, drilling and production. The potential for impacts are similar to, but have a higher impact to air quality when compared to Alternative B.

Over the last 10 years including 2010, leasing Federal oil and gas mineral estate has resulted in a total of 13,436 APDs approved in the Buffalo FO, 882 APDs in Casper FO, and 327 APDs in the Newcastle FO. A total of 14,645 APDs have been approved in the HPD over these last ten years for an annual average of 1,465 APDs; 1,344 APDs per year in Buffalo FO, 88 APDs per year in Casper FO and 33 APDs per year in Newcastle FO. As of 2010, there are over 39,000 producing wells in the HPD consisting of: Buffalo FO with over 31,000, Casper FO with over 5,000 and Newcastle FO with over 3,000. Coalbed natural gas development accounts for a large proportion of the APDs approved within the HPD, specifically within the Buffalo FO, since the late 1990s. Appendix G, Hydraulic Fracturing White Paper, Section II, Operational Issues/Gas emissions (page 2) is incorporated by reference.

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, dehydration and separation facilities, and volatile organic compounds during drilling or production activities. The amount of increased emissions cannot be quantified 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 would also vary according to the characteristics of the geologic formations from which production would occur. Emissions of all regulated pollutants under the Clean Air Act would be evaluated by the WDEQ and, in some instances, by the BLM at the time that a specific development project is proposed.

It is not known whether the petroleum resources specific to the leases in this alternative are gas or oil, or a combination thereof. The density of drilling locations depends upon the technology feasible and available (vertical, directional, or horizontal), and the geology of the hydrocarbon-bearing zone. As a result, the specific numbers of wells that could potentially be drilled as a result of the sale of the nominated parcels and subsequent issuance of leases is unknown. However, the RFD considers these assumptions and, on a field office-wide basis, is still valid for both the Buffalo and Casper FOs. Newcastle FO does not have an RFD for their RMP.

4.3.1.2 Green House Gas Emissions

4.3.1.2.1 Alternative A – No Action

Under the No Action Alternative, none of the 165 parcels in the HPD would be offered for sale. No oil and gas development would occur on these parcels. Ongoing oil and gas development would continue on surrounding Federal, private, and state leases.

A decision not to offer the 165 subject parcels for sale would not affect existing uses of these parcels. The parcels are used primarily for livestock grazing, with some dispersed recreation such as hunting and hiking. These uses typically entail vehicle travel for access, and that would be expected to continue at current rates.

Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.3.1.2.2 Alternative B – Proposed Action

Offering 139 parcels for competitive sale would have no direct impacts to greenhouse gas emissions. Any potential effects to GHG emissions would occur when the leases were sold and subsequently developed. APD permitting trends within the HPD varies among the three field offices.

4.3.1.2.3 Alternative C – Offer All Parcels for Sale

Under this alternative, all 165 parcels within the HPD would be offered for sale in February 2015, and subsequent leases would be issued with the appropriate stipulations (Appendix C, Lease Parcel Lists). Offering all 165 parcels for leasing under Alternative C could increase the opportunity for surface disturbing activities, drilling, and production. The potential for GHG emissions would be similar to, but have a higher probability of occurring in larger amounts when compared to Alternative B.

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 may contribute to new wells being drilled.

The Center for Climate Strategies prepared the Wyoming Greenhouse Gas Inventory and Reference Case Projection 1990-2020 (Inventory) for the WDEQ through an effort of the Western Regional Air Partnership. This *Inventory* report presented a preliminary draft 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 U.S. 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 mmtCO_2 e in 2005. Wyoming's per capita emission rate is more than four times greater than the national average of 25 mmtCO2e/yr. This large difference between national and state per capita emissions occurs in most of the sectors – Wyoming's emission per capita considerably exceeds national emissions per capita for electricity, industrial, fossil fuel production, transportation, industrial process, and agriculture. The state's strong fossil fuel production and other industries with high fossil fuel consumption intensity, large agriculture industry, and large distances could be the reasons for the higher per capita intensity in Wyoming. This phenomenon is primarily the result of a low population base (small denominator). Between 1990 and 2005, per capita emissions in Wyoming increased, mostly due to increased activity in the fossil fuel industry, while national per capita emissions have changed relatively little.

Wyoming's gross GHG emissions are expected to continue to grow to 69 mmtCO_2e by 2020, 56% above 1990 levels. As shown in figure ES-3 of the *Inventory*, demand for electricity is projected to be the largest contributor to future emissions growth, followed by emissions associated with transportation. Although GHG emissions from fossil fuel production had the greatest increase by sector from 1990 to 2005, the growth from this sector is projected to decline due to the assumption that carbon dioxide emissions from venting at processing plants would decrease.

As of 2010, there were approximately 59,500 producing oil and gas wells in the state and approximately 39,500 producing wells in the HPD. The Buffalo FO had over 31,000, the Casper FO over 5,000, and the Newcastle FO over 3,000. As of that same time, approximately 30,500 producing oil and gas wells in Wyoming were under Federal administration with about 18,000 of these within the HPD. The Buffalo FO had over 12,500, the Casper FO over 4,000, and the Newcastle FO almost 1,500. This accounted for approximately 59 percent of the total Federal wells in Wyoming and 66 percent of the total wells. Therefore, based on the above information, GHG emissions from all wells within the HPD amounted to approximately 12.94 metric tons (mt) annually (19.6 mt X 0.66 = 12.94 mt) assuming steady production and emission venting.

Based on this emission factor, each potential well that may be drilled on these parcels, if leased, could emit approximately 0.00059 mt of CO_2e. 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 this alternative.

4.3.1.3 Visibility

4.3.1.3.1 Alternative A – No Action

Under the no action alternative, none of the 165 parcels in the HPD would be offered for sale. No oil and gas development would occur on these parcels. Ongoing oil and gas development would continue on surrounding Federal, private, and state leases.

A decision not to offer the 165 subject parcels for sale would not affect existing uses of these parcels. The parcels are used primarily for livestock grazing, with some dispersed recreation such as hunting and hiking. These uses typically entail vehicle travel for access, and that would be expected to continue at current rates.

Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.3.1.3.2 Alternative B – Proposed Action

Offering 139 parcels for competitive sale would have no direct impacts to visibility. Any potential effects to visibility would occur when the leases were sold and subsequently developed particularly during construction. Data collection for visibility would continue.

4.3.1.3.3 Alternative C – Offer All Parcels for Sale

Offering all 165 parcels for leasing under Alternative C could increase the opportunity for surface disturbing activities, drilling, and production. The potential for visibility impacts are similar to, but have a higher probability of occurring in larger amounts when compared to Alternative B.

4.3.1.4 Mitigation Measures for Air Resources

Best management practices (BMPs) such as those used to reduce fugitive dust emissions and GHG emissions and to maintain air quality, would help mitigate effects to these resources. Further analysis at the APD and facility application stages of development may examine possible mitigations to alleviate site-specific impacts.

The BLM holds regulatory jurisdiction over portions of natural gas and petroleum systems identified in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks*: 1990-2006* documents. Exercise of this regulatory jurisdiction has led to development of BMPs designed to reduce emissions from field production and operations. Analysis and approval of future development on the lease parcels would include applicable and reasonable BMPs as conditions of approval (COA) in order to reduce or mitigate GHG emissions. Additional measures developed at the project development stage could be incorporated as COAs in the approved APD.

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;
- Use 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.

According to the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006* by the EPA, data shows that adoption by industry of the BMPs proposed by the EPA's Natural Gas Energy Star program has reduced emissions from oil and gas exploration and development. The BLM would 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.

4.3.1.5 Residual Impacts

No residual impacts would continue from offering and issuing the leases. Any proposed development activities would be reviewed when an APD or other facility application is received. At the time of approval, further mitigation may be applied to reduce adverse impacts.

4.3.1.6 Monitoring and/or Compliance

Monitoring at the stations listed in Chapter 3 would continue, as would data collection at the Thunder Basin National Grasslands and Cloud Peak Wilderness IMPROVE monitoring sites. Monitoring and compliance are an integral part of lease administration. As development increases, monitoring and compliance increases as future APDs or other facility applications are approved. Site-specific review would help in application of these requirements.

4.3.2 Heritage Resources

4.3.2.1 Alternative A – No Action

Under the No Action Alternative, none of the 165 parcels in the HPD would be offered for sale. No oil and gas development would occur on these parcels. Ongoing oil and gas development would continue on surrounding Federal, private, and state leases. A decision not to offer the 165 subject parcels for sale would not impact cultural resources. Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.3.2.2 Alternative B – Proposed Action

Under this alternative, 139 parcels would be offered for lease with all or part of 27 parcels

deferred because of Native American consultation concerns. Known historic properties in the proposed parcels can most likely be avoided by surface disturbance activities. If a historic property within a lease parcel cannot be avoided, the BLM has the discretion to modify or deny the proposal.

The FOs will consider site specific impacts to historic properties resulting from possible future actions on the remaining leases. Proposed impacts would be avoided or mitigated in consultation with the Wyoming SHPO, tribes and interested parties through compliance with Section 106 of the NHPA. FOs will consult with interested tribes if potential TCPs or sacred sites are identified during the cultural resource inventory.

4.3.2.3 Alternative C – Offer All Parcels for Sale

Under Alternative C, all 165 parcels would be offered for competitive sale in February 2015, and subsequent leases would be issued. Other cultural resources may be impacted under this alternative, but impacts would be avoided or mitigated as discussed above in Alternative B.

4.3.2.4 Mitigation Measures

If necessary, additional mitigation may be required at the APD stage when all cultural resources potentially affected by a project are located, and specific impacts are known.

4.3.2.5 Residual Impacts

No residual impacts would occur from offering the parcels for sale and issuing the leases. The FO may apply mitigation to reduce adverse impacts.

4.3.2.6 Monitoring and/or Compliance

After leasing, when a project is constructed in an area with a high potential for buried cultural material, archaeological monitoring may be included as a condition of approval. Monitoring may also be required if development would occur near a sensitive site. Construction monitoring is performed by a qualified archeologist working in unison with construction crews. If buried cultural resources are located by the archeologist, construction is halted and the BLM consults with the Wyoming SHPO on mitigation or avoidance. Tribes occasionally recommend tribal monitors for construction projects. Individual field offices consider applying such recommendations as conditions of approval to the drilling permits at the APD stage.

4.3.3 Paleontology Resources

4.3.3.1 Alternative A – No Action

Under the No Action Alternative, none of the 165 parcels in the HPD would be offered for sale. No oil and gas development would occur on these parcels. Ongoing oil and gas development would continue on surrounding Federal, private, and state leases. A decision not to offer the 165

subject parcels for sale would not impact paleontological resources. Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.3.3.2 Alternative B – Offer All Parcels for Sale

Under this alternative, all 139 parcels would be offered for lease with no parcels deferred for paleontological resources issues. Lease stipulations requiring inventory prior to surface disturbance would be added to 10 parcels indicating that surface occupancy may be restricted or prohibited if paleontological resources are present. The FOs would consider site specific impacts during the APD phases. Proposed impacts would be avoided or mitigated.

4.3.3.3 Alternative C – Offer All Parcels for Sale

Under Alternative C, all 165 parcels would be offered for competitive sale in February 2015, and subsequent leases would be issued. Other paleontological resources may be impacted under this alternative, but impacts would be avoided or mitigated as discussed above in Alternative B.

4.3.3.4 Mitigation Measures

Mitigation may be required at the APD stage when all paleontological resources potentially affected by a project are located, and specific impacts are known.

4.3.3.5 Residual Impacts

No residual impacts would occur from offering the parcels for sale and issuing the leases. The FO may apply mitigation to reduce adverse impacts if development were to occur later.

4.3.3.6 Monitoring and/or Compliance

After leasing, when a project is constructed in an area with a high potential for paleontological resources, mitigation may be included as a condition of approval. Inventory or monitoring may also be required if development would occur in a sensitive area. Individual field offices consider the need for inventory, monitoring, or mitigation applying recommendations as conditions of approval to the drilling permits at the APD stage.

4.3.4 Water Resources

4.3.4.1 Alternative A – No Action

Under this alternative none of the 165 parcels would be made available for sale and no development under those leases would occur. No oil and gas development would occur on these parcels. Ongoing oil and gas development would continue on surrounding Federal, private, and state leases. A decision not to offer the 165 subject parcels for sale would not impact water resources. Selection of the No Action Alternative would not preclude the re-nomination of a

deleted parcel from sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.3.4.2 Alternative B

Under this alternative, 139 parcels would be offered for lease. While the act of leasing would produce no impacts, subsequent development of the lease could result in long term and short term changes in water resources. The FOs would consider site specific impacts during the APD phases. Proposed impacts would be avoided or mitigated. Information contained in Appendix G, Hydraulic Fracturing White Paper, Section III, Potential Impacts to Usable Water zones (pages 6-10), is incorporated by reference.

4.3.4.3 Alternative C – Offer All Parcels for Sale

Under this alternative, all 165 parcels would be offered for lease. Offering all 165 parcels for leasing under Alternative C could increase the opportunity for surface disturbing activities, drilling, and production. The potential for water resource impacts are similar to, but have a higher probability of occurring when compared to Alternative B. Proposed impacts would be avoided or mitigated.

4.3.4.4 Mitigation Measures

Surface water mitigation was applied to parcels as dictated in the pertinent RMP. If necessary, additional mitigation may be required at the APD stage.

4.3.4.5 Residual Impacts

No residual impacts would occur from offering the parcels for sale and issuing the leases. The FO may apply mitigation to reduce adverse impacts if development were to occur later.

4.3.4.6 Monitoring and/or Compliance

After leasing, when a project is constructed in an area with a high potential for impacts to water resources, mitigation may be included as a condition of approval. Monitoring may also be required if development would occur near a sensitive area. Individual field offices consider applying recommendations as conditions of approval to the drilling permits at the APD stage.

4.3.5 Socioeconomic Resources

4.3.5.1 Alternative A – No Action

Under this alternative none of the 165 parcels would be made available for sale and no development under those leases would occur. The proposed lease parcels are located in Campbell, Converse, Crook, Goshen, Johnson, Natrona, Niobrara, and Weston Counties in Wyoming. As these counties rely heavily on energy development revenue, the communities in the leasing areas are likely to be negatively impacted by loss of potential revenue. It is an assumption that the No Action Alternative (no lease option) may result in a reduction in domestic production of oil and gas. This would likely result in reduced Federal and state

royalty income, and the potential for Federal land to be drained by wells on adjacent private or state land.

4.3.5.2 Alternative B – Proposed Action

Under this alternative, 139 parcels would be offered for lease. This would result in a slight reduction in revenue for the Federal and state governments compared to Alternative C, where all parcels are offered for sale. The actual amount of the reduction is not known. At the leasing stage the BLM cannot predict whether or not any of the parcels will actually be developed or what level of development would occur. Subsequent development and production would result in slightly fewer royalties than Alternative C.

4.3.5.3 Alternative C – Offer All Parcels for Sale

Under this alternative all 165 parcels would be offered for lease. This would all allow the most revenue for the Federal and state governments. In addition, subsequent development and production is anticipated to be highest under this alternative. This would result in the greatest amount of royalties among the three alternatives.

4.3.6 Wildlife and Special Status Species (Plant and Animal)

4.3.6.1 Alternative A – No Action

Under the No Action Alternative, none of the 165 parcels would be offered for sale. No oil and gas development would occur on these parcels if not offered for lease. Ongoing oil and gas development would continue on surrounding Federal, private, and state leases.

A decision to not offer for sale the 165 subject parcels would not affect existing uses of these parcels. These parcels are used primarily for livestock grazing, with some dispersed recreation such as hunting and hiking. These uses typically entail vehicle travel for access, and that would be expected to continue at current rates.

Selection of the No Action Alternative would not preclude the re-nomination of a deleted parcel from sale at some point in the future, as long as the area remains open to fluid mineral leasing.

Impacts to Greater Sage-grouse core areas/connectivity habitats would continue from those activities associated with current land uses, such as private and state surface or mineral development, recreation, and agriculture.

4.3.6.2 Alternative B – Proposed Action

Under this alternative, 139 parcels would be offered for sale. Well-pad, road, and pipeline development into areas currently devoid of surface disturbance could result in habitat fragmentation for some species. This habitat impact could affect a variety of species, including Greater Sage-grouse, mule deer, white-tailed deer, antelope, elk, and various non-game species.

Post lease development on the parcels could result in short-term and long-term losses of wildlife habitat. Short-term habitat loss would include all initial surface disturbance associated with the project and typically would be on-going until those portions of a well pad not needed for production operations, road disturbance outside the running surface or ditches, and the pipeline disturbance are reclaimed. Long-term habitat loss would include those areas needed for production operations for the life of the well.

Some species of wildlife are more sensitive to noise and disturbance than other species, while other species habituate to types of noise or disruption. On the other hand, certain magnitudes and frequency of noise may interrupt wildlife communication and adversely impact wildlife. Depending on the intensity and frequency of occurrence of the disruption, additional disruption during critical periods (*e.g.*, winter, parturition) can impact wildlife survival and productivity.

Greater Sage-grouse

There are many sources of habitat fragmentation, all of which may affect the Greater Sage-grouse. Industrial development, livestock grazing, mining, gravel pit operations, oil and gas activity, land exchanges and disposal, vegetation manipulation, fuel reduction projects, and other activities may disturb and fragment natural habitat conditions. Structures such as power lines, towers, and industrial disruptive activities may cause avoidance and abandonment of habitat. Livestock grazing, fuels treatments, and weed infestations are factors which may cause habitat degradation depending upon severity, intensity, and design. West Nile virus, which recently has had lethal effects on Greater Sage-grouse in parts of Wyoming, could cause increased mortality and reduce Greater Sage-grouse survival.

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 FWS of warranted for listing but precluded. Population levels throughout the HPD declined during the mid-1990s. Population numbers increased to a peak in 2006 and have declined significantly in the HPD since. Population numbers have varied throughout the HPD based on specific local conditions, with some areas showing little change while other areas have noticed dramatic differences. To promote Greater Sage-grouse Conservation, additional restrictions on O&G leases are needed to limit potential adverse impacts from any development activities. As shown in Figure 3.4 in Chapter 3, Federal oil and gas lease acreage in Sage-grouse Core Area has declined from 2006 through 2014.

At the time development activities are proposed, the BLM would conduct a site-specific review of the proposal and potential disturbance within the current Greater Sage-grouse habitat boundaries (such as the Wyoming Governor's core areas). The BLM may require additional avoidance and/or impact minimization measures in order to manage Greater Sage-grouse habitat in support of Wyoming's Greater Sage-grouse conservation strategy and the WGFD's Greater Sage-grouse objectives. These measures may include, but are not limited to, density/disturbance limitations and surface use and timing restrictions in proximity to certain habitats, *e.g.*, severe winter relief habitat, Greater Sage-grouse leks, etc. Restrictions and mitigation for surface use activities may be applied for distances and time periods more restrictive than current RMP stipulation guidance if supported by site-specific NEPA analysis of a development proposal.

Such restrictions could be applied as COAs for exploration and development activities associated with the lease. These measures may be necessary to meet BLM policy goals for managing Greater Sage-grouse habitat and populations as special status species as directed in BLM Manual 6840.

The BLM is currently amending six RMPs across the state. Within the HPD, the Casper and Newcastle RMPs are currently being amended. These RMP amendments will provide for public input including scoping and comments. The goal of the RMP amendments is to implement a Greater Sage-grouse conservation strategy consistent with the Wyoming Governor's Executive Order 2011-5 and BLM policy.

Raptors

Surface disturbing and/or disruptive activities from February 1 to July 31, may cause impacts to nesting raptors, if present. The primary impact would be from nesting disturbance which could result in nest abandonment and/or increased chick mortality. Raptors such as ferruginous hawks, golden eagles, and bald eagles are more sensitive to vehicular traffic than are others. Site-specific wildlife surveys may be required at the APD stage to identify occupied habitats.

Threatened and Endangered and BLM Sensitive Species

Surface-disturbing activities, such as well pad construction, road construction, and other mechanized disturbance could impact potential habitats for special status plants and animals, including undocumented populations. Such activities fragment habitats and alter plant community characteristics, which can isolate or adversely affect populations of special status species. Long-term impacts such as habitat fragmentation and isolation of populations are difficult to mitigate; however, short-term impacts from surface disturbance are mitigated by reclamation and weed control. If habitat is present, site-specific surveys for all sensitive or T&E species may be required at the APD stage.

4.3.6.3 Alternative C – Offer All Parcels for Sale

Under this alternative, 165 parcels located within the HPD would be available for competitive sale in February 2015, and subsequent leases would be issued with the stipulations detailed in Appendix C, Parcel Lease Lists. The potential for impacts are similar to, but have a higher probability of occurring and at a greater intensity, as under Alternative B. Without conformance with the Wyoming Greater Sage-grouse core area conservation strategy, it is possible that the Greater Sage-grouse could eventually be listed as a T&E species.

Impacts associated with other plant and animal species would be the same as those described under Alternative B.

4.3.6.4 Mitigation Measures

Adding stipulations for parcels within the Buffalo, Casper, and Newcastle RMP's for mapped

wildlife habitat is recommended to ensure continued RMP population and habitat objectives can be maintained for wildlife species. Additional mitigation and/or COAs for any species would be identified at the development stage to further reduce impacts associated with oil and gas development.

4.3.6.5 Residual Impacts

No residual impacts would occur from offering and issuing the leases. If a lease is developed, there would be heavy construction equipment working. Due to the extent of work and the surface disturbance and disruptive activities caused by construction activities, it is possible that wildlife populations and habitats could be impacted by these activities. These activities would be further analyzed during the site-specific review conducted when an APD or other facility application is received. At the time of approval, further mitigation may be applied to reduce adverse impacts.

4.3.6.6 Monitoring and/or Compliance

Continued monitoring and compliance is an integral part of lease administration. When a project is constructed in an area with suitable species' habitat, wildlife and T&E surveys and/or monitoring may be required as a condition of approval. Surveys are performed by a qualified wildlife biologist working in unison with the operator. Coordination with the WGFD on mitigation or avoidance criteria is conducted before surface disturbance or disruptive activities take place, in some instances. Individual field offices may consider applying WGFD recommendations as conditions of approval to the drilling permits at the APD stage.

Consultation with the FWS under section 7 of the ESA would take place at the APD stage, if ESA protected species could be affected by permitted development activities.

4.4 Cumulative Impacts Analysis

The cumulative impacts assessment area for this EA is the HPD which consists of the Buffalo FO, the Casper FO, and the Newcastle FO. Analysis of cumulative impacts for RFD scenarios of oil and gas wells on public lands is presented in the respective RMPs. Potential development of all available Federal minerals in the field office was included as part of the analysis.

Under Alternative A, the No Action Alternative, there would be no cumulative impacts to any of the resources listed above except for those activities on state and private lands or other BLM authorized activities.

As of 2010, there were over 59,000 producing oil and gas wells in the state and over 39,000 producing wells in the HPD. The Buffalo FO had over 31,000, the Casper FO, over 5,000, and the Newcastle FO over 3,000. At that same time, over 30,000 producing oil and gas wells in Wyoming were Federal with over 18,000 wells within the HPD. The Buffalo FO had over 12,500, the Casper FO over 4,000, and the Newcastle FO with almost 1,500. When compared to the total GHG emission estimates from the number of Federal oil and gas wells in the state, the

average number of oil and gas wells drilled annually within the HPD and probable GHG emission levels represent an incremental contribution to the total regional and global GHG emission levels. As oil and natural gas production technology continues to improve in the future, it is possible that GHG emissions may be reduced. Information contained in Appendix G, Hydraulic Fracturing White Paper, Section II Operational Issues/Water Availability and Consumption (page 4 and Attachment 1), is incorporated by reference.

Estimating the current level of emissions and projecting future production of oil and gas is difficult to forecast with the mix of drivers: economics, resource supply, demand, and regulatory procedures. The assumptions used for the projections are based on recent trends or state production trends in the near-term, and Annual Energy Outlook 2006 (AEO 2006) growth rates through 2020. These assumptions 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.

For cultural resources, wildlife, T&E, and sensitive species resources the cumulative impact of 139 more parcels leased under Alternative B would be an incremental increase to the overall total parcels currently leased in the state. Any development would require APD and facility applications to then analyze the impacts for proposed development. That analysis may include surveys for these resources. Cumulative impacts would be further considered and, if necessary, mitigated.

Under Alternative C, there would be an incremental increase when compared to cumulative impacts for Alternative B. Again, any development would require APD and facility applications to then analyze the impacts for that development. That analysis would include surveys for cultural resources, paleontological resources, wildlife, T&E, and sensitive species resources. Cumulative impacts would be further analyzed in detail and mitigated for at that time.

Chapter 5

Consultation and Coordination

5.1 Introduction

The issues identified in Chapter 1 (Section 1.6) are analyzed in detail in Chapter 4. The Interdisciplinary Team resource issues and the rationale for issues that were considered but not analyzed further (Section 1.7) were identified through the public and agency involvement process described in Sections 5.2 and 5.3.

5.2 Persons, Groups, and Agencies Consulted

Table 5.1 List of all Persons, Agencies and Organizations Consulted for Purposes of this EA

Name	Purpose and Authorities for Consultation or Coordination	Findings and Conclusions
Joe Sandrini	Wyoming Game and Fish Department – Biologist	See project file
Heather O'Brien	Wyoming Game and Fish Department – Biologist	See project file
Erika Peckham	Wyoming Game and Fish Department – Biologist	See project file
Willow Hibbs	Wyoming Game and Fish Department – Biologist/Habitat Biologist	See project file
Dan Thiele	Wyoming Game and Fish Department – Biologist/Habitat Biologist	See project file

5.3 Summary of Public Participation

Public participation was initiated when this EA was entered into the High Plains District Office NEPA tracking database on May 20, 2014. A press release announcing the availability of the EA for comments was e-mailed to local media on July 21, 2014. The press release stated that the comment period for the EA would run until August 20, 2014. In addition, informational postcards were mailed to affected landowners and Native American tribes in July 2014. As required by the BLM leasing policy, where parcels are split estate, a notification letter soliciting EA review and comments was sent to the surface owner based on the surface owner information provided by the party submitting the EOI.

5.3.1 Comment Analysis

The HPD will evaluate any comments received on the EA.

5.4 List of Preparers

Table 5.2 List of Preparers

Name	Title	Responsible for
Randy Sorenson	Acting High Plains District Resource Advisor, Energy & Minerals	Project Manager
Andrea Meeks	High Plains District, Solid Mineral Specialist	Coal
Debby Green	Buffalo FO, Natural Resource Specialist (NRS)	Buffalo FO Lead, Core Team NRS
G.L. "Buck" Damone III	Buffalo FO, Lead Archaeologist	Core Team Archaeologist, Cultural Resources, Paleontology
Donald Brewer	Buffalo FO, Wildlife Biologist	Wildlife, Threatened and Endangered Species and Special Status Species; BFO Review
Allison Barnes	Buffalo FO, Outdoor Recreation Planner	Wilderness, Recreation
John Kelley	Buffalo FO, Planning and Environmental Coordinator	NEPA
Shane Gray	Casper FO, Natural Resource Specialist (NRS)	Casper FO Lead, Wildlife, Threatened and Endangered Species, CFO Reviews and Special Status Species
Jude Carino	Casper FO, Archaeologist	Cultural Resources, Paleontology
Dora Ridenour	Casper FO, Archaeologist	Cultural Resources, Paleontology
Jim Hutchinson	Newcastle FO, Physical Scientist.	Newcastle FO Lead
Tracy Pinter	Newcastle FO, Wildlife Biologist	Core Team Wildlife Biologist, NFO Reviews and Special Status Species
Alice Tratebas	Newcastle FO, Archaeologist	Archaeology, Paleontology

5.5 References

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