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Environmental Assessment

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High Plains District Portions

Of the February 2013 Lease Sale

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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 (RMPs) (*October 1985, December 2007, September 2000, respectively, and their amendments*) and to address new information and policy for the Bureau of Land Management's (BLM) High Plains District Office (High Plains DO) portion of the February 2013 Competitive Oil and Gas Lease Sale of which 100 parcels were nominated for leasing within the High Plains DO.

EAs assist the BLM in project planning and compliance with the National Environmental Policy Act (NEPA). They 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 (CEQ) and is found in regulation Title 40 Code of Federal Regulations (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), 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), Title 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 BLM 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 BLM in consultation with the appropriate surface management agency or the private surface owner.

As part of the February 2013 lease sale preparation process the BLM's WSO submitted the preliminary parcel list to the High Plains DO 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 District Office (DO), reviewed the parcels to determine if they are in areas open to leasing. Each FO made recommendations to the High Plains DO. 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 High Plains DO 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. The final EA with a list of available lease parcels and stipulations will be returned to the WSO and will be made available to the public through a Notice of Competitive Lease Sale.

As mentioned previously, this EA documents the High Plains DO, Buffalo FO, Casper FO, and Newcastle FO review of the 100 parcels containing 54,808 Federal mineral acres and 9,978 Federal surface acres as depicted in the table below.

Table 1.1 Federal Mineral Acres & Federal Surface Acres

Field Office	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Buffalo FO	2	360	120
Casper FO*	37	17,877	4,490
Newcastle FO*	62	36,571	5,368
Total	100*	54,808	9,978

*Note: One parcel falls within both CFO and NFO, resulting in a discrepancy in total parcels. Acres reflect only those in the FO.

Parcel WY-1302-053 is located within both the Casper FO and the Newcastle FO, and is therefore represented on the parcel lists for both field offices.

In the preliminary parcel list submitted to the High Plains DO by the WSO, Parcels WY-1302-054 and WY-1302-055 were listed as inside both Newcastle FO and Casper FO boundaries. Geographical Information System (GIS) data revealed that both parcels are inside the Newcastle FO boundaries and not inside Casper FO boundaries. Therefore, Parcels WY-1302-054 and WY-1302-055 were deleted from the Casper FO parcel list, and retained on the Newcastle FO parcel list.

In the preliminary parcel list submitted to the High Plains DO by the WSO, Parcel WY-1302-079 had Section 026, Lots 8, 9, 14, and 15 offered for lease, which will be offered for lease during the August 2012 Oil & Gas Lease Sale. Therefore, Section 026, Lots 8, 9, 14, and 15 were deleted from the Casper FO parcel list, reducing the acreage for Parcel WY-1302-079 by

156 acres.

Parcel WY-1302-111 was in both the High Plains DO, Casper FO and the Wind River Bighorn Basin District Office, Lander Field Office. This parcel will be analyzed in each District's EA for the pertinent RMP.

In the preliminary parcel list submitted to the High Plains DO by the WSO, Parcel WY-1302-112 was listed as inside both the Casper FO and Lander FO boundaries. Geographical Information System (GIS) data revealed that Parcel WY-1302-112 is inside the Lander FO boundaries and not inside Casper FO boundaries. Therefore Parcel WY-1302-112 was deleted from the Casper FO parcel list.

Parcel WY-1302-501 in the Casper FO was previously deferred in the June 2009 Oil and Gas Lease Sale because of a conflict with Coal leasing. It was deferred to allow the High Plains District to finish the LBA (Lease by Application) before issuing a competing lease-right. Since the Coal lease has been completed, Parcel WY-1302-501 can now be offered for lease.

In the preliminary parcel list submitted to the High Plains DO by the WSO, Parcel WY-1320-049 had SWSW of Section 022 (containing approximately 40 acres of federal minerals) offered for lease. This portion of the parcel is part of the Thunder Basin National Grasslands. Normally, Forest Service parcels are screened and deferred by the WSO before the parcel list is issued to the High Plains DO for review, however, this portion of parcel WY-1302-049 was missed. Therefore, the SWSW of Section 022 of Parcel WY-1302-049 is deferred in Chapter 1 of this EA, and is not analyzed further in this document.

This EA also serves to verify conformance with the approved Buffalo, Casper and Newcastle Resource Management Plans 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 for the Proposed Action

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 FOOGLRA to respond to Expressions of Interest, FLPMA, and Mineral Leasing Act of 1920 (MLA), as amended. BLM's responsibility under the MLA, as amended, 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 shall be 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 High Plains DO portion at the February 2013 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 (Buffalo RMP) and Final Environmental Impact Statement (FEIS) (1985) and the RMP/Record of Decision (ROD) approved in October 1985; the Casper Resource Management Plan (Casper RMP) and Final Environmental Impact Statement (FEIS) (June 2007) and the RMP/ROD approved in December 2007; the Newcastle Resource Management Plan (Newcastle RMP) and Final Environmental Impact Statement (FEIS) (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 occurring within 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 Field Office review. Individual parcels may contain threatened, endangered, candidate, or BLM sensitive species (EA Section 3.0, Affected Environment; Appendix A,

Interdisciplinary Team Checklists; 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.

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 High Plains DO 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, BLM narrows its focus as relevant to the action being analyzed, going from the 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. Resource management plan (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, BLM seeks to identify and inventory historic properties, including traditional cultural properties 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 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 High Plains DO 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 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. BLM will include the following cultural resource lease stipulation to 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. BLM must analyze the potential effects that such activities could have on historic properties. Utilizing historic property information gathered through the two previous stages, 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 field offices must base site specific lease stipulations (such as controlled surface use (CSU) or no surface occupancy (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, as amended (Public Law 91-90, USC 4321 *et seq*.), 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 High Plains DO is predominantly split estate private surface and federal minerals. Of the 100 parcels nominated for leasing (a total of 54,808 Federal mineral acres and 9,978 Federal surface acres), 33 parcels are both wholly or partially federal surface and federal minerals (24,360 federal mineral acres) while the other 67 parcels are entirely federal minerals underlying state or private surface (30,291 federal mineral acres).

Field visits were performed on those parcels that the BLM had access or access was allowed by the surface owners. Forty-eight (48) parcels were visited using public access such as county or state roads. In the Buffalo FO, Parcels WY-1302-075, WY-1302-076, were visited. In the Casper FO, Parcels WY-1302-053, WY-1302-060, WY-1302-061, WY-1302-062, WY-1302-063, WY-1302-066, WY-1302-073, WY-1302-077, WY-1302-078, WY-1302-079, WY-1302-080, WY-1302-081, WY-1302-082, WY-1302-083, WY-1302-084, WY-1302-085, WY-1302-086, WY-1302-087, WY-1302-088, WY-1302-092, WY-1302-094, WY-1302-097, WY-1302-111 were visited. In the Newcastle FO, Parcels WY-1302-005, WY-1302-008, WY-1302-009, WY-1302-010, WY-1302-017, WY-1302-022, WY-1302-026, WY-1302-029, WY-1302-030, WY-1302-031, WY-1302-032, WY-1302-035, WY-1302-036, WY-1302-037, WY-1302-049, WY-1302-052, WY-1302-053, WY-1302-054, WY-1302-055, WY-1302-056, WY-1302-057, WY-1302-068, WY-1302-072 were visited. Pictures were taken at these 48 parcels and where available, GPS coordinates were taken at those photo points. Geographical information system (GIS) data and digital Ortho photo quads (DOQQ) were used regardless of whether or not the field teams could visit the parcels, but were predominantly relied on for review of the 52 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 Division, from 1960 through 2011, 75,192 leases have been leased 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 High Plains DO were formed to review the parcels proposed for sale and subsequent leasing. Appendix A, Interdisciplinary Team Checklists, contains all resources within the given FO and indicates whether the resource is not present (NP), present but not impacted (NI), or present with the potential for impact (PI). Those resources that were documented as NP or NI were eliminated from further analysis as stated in section 1.7 below with the rational listed either in that section or under the column 'Rationale for Determination' in Appendix A, Interdisciplinary Team Checklists. Issues that were identified in Appendix A, Interdisciplinary Team Checklists as PI and further discussed in this EA are air resources (including air quality, greenhouse gases, and visibility), cultural resources, coal, paleontological, recreation and special management areas, socioeconomics, 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 3. 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.

Traditional cultural properties (TCPs), sacred sites, or other areas that are of concern to Indian tribes have the potential to be impacted by oil and gas development. The High Plains DO 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 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 BLM revealing sensitive information in relation to sacred sites. BLM must consider all comments on this EA regardless of the source, but BLM is also required to make additional efforts to hear the concerns of tribes and to keep sensitive information confidential. The tribes also suggested 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-Indians 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 High Plains DO 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 BLM's Section 106 obligations. Additionally, the special lease stipulation related to NHPA compliance gives BLM decision makers the discretion to modify or disapprove any project specific proposals that could potentially disturb TCPs or sacred sites.

1.7 Issues Considered but Eliminated from Further Analysis

The following issues were identified but eliminated from further analysis as described. Appendix A, Interdisciplinary Team Checklists, has a comprehensive listing by FO of what resources were identified for this EA and the rationale for whether or not they were included in this document.

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 3, 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. Greenhouse gases 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 proximity to existing and proposed Renewable Energy Development, specifically Wind Development was screened. The screening determined the following:

- Parcel WY-1302-091 contains approximately 74 federal mineral acres and zero federal surface acres within a Wind Development Proposed Type II area.

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 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. Casper FO found all but four parcels met the first criteria but those four did not meet the next criteria [imprint of man's work substantially unnoticeable (yes/no)].

The parcels were also evaluated against the approved leasing reform implementation plan. None of the parcels in the High Plains DO are within any Master Leasing Plan (MLP) areas as submitted by the public and determined by the BLM Wyoming State Director. For this reason, MLPs will not be considered for analysis in this document. Refer to Appendix D, which contains MLP screens for each Field Office.

1.8 Public Participation

A press release announcing the availability of the EA for comments was e-mailed to local media on July 23, 2012. The press release stated that the comment period for the EA would run until August 22, 2012. In addition, informational postcards were mailed to affected landowners on or about July 25, 2012 and letters were mailed to Native American tribes on or about July 24, 2012. As required by the BLM leasing policy, where parcels are split estate, a notification letter was previously mailed 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 Expressions of Interest (EOI). For an overview of the comments and responses see Section 5.3.1 and for the specific comments see Appendix F, Comments and Responses.

1.9 Summary

This Chapter presents the purpose and need for sale of those parcels within the High Plains DO portion of the February 2013 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 High Plains DO portion of the February 2013 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. Some resources in Chapter 3 do not appear in the Chapter 4 analysis due to fact that they have already been analyzed in the pertinent RMP and stipulations are only being disclosed in Chapter 3 to alleviate confusion concerning how stipulations have been applied by resource.

Chapter 2

Proposed Action and Alternatives

2.1 Introduction

The High Plains DO received nominations for 100 parcels (54,808 federal mineral acres and 9,978 federal surface acres) for the February 2013 Competitive Oil and Gas Lease Sale. Out of the 100 parcels analyzed in this EA, 2 parcels are administered by the Buffalo FO, 37 parcels are administered by the Casper FO and 62 parcels are administered by the Newcastle FO. One parcel, WY-1302-053, is located within both the Casper FO and the Newcastle FO boundaries, and is therefore administered by both field offices. However, since both Field Offices analyzed the parcel within their respective boundaries, 101 parcels have been analyzed in this EA. All of the parcels nominated for the February 2013 Competitive Oil and Gas Lease Sale will be analyzed in this document. None of the parcels fell within any areas designated as unavailable for leasing in any of the three plans (see Section 1.5). 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	86*	38,463	7,048
Alternative C	101	54,611	9,938

*Seven parcels are partial deferrals resulting in discrepancy totals

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. This mitigation has been placed in Chapter 3, the Affected Environment; therefore, the analysis in Chapter 4 will focus on the differences between the alternatives rather than the additions of mitigation.

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 expression of interest to lease (parcel nomination) would be deleted. The No Action alternative would delete all 101 parcels from the High Plains DO portion of the February 2013 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 86 of the 101 parcels currently analyzed in this EA for the High Plains DO portion of the February 2013 Competitive Oil and Gas Lease Sale. The other 22 parcels would be deferred as shown in Tables 2.3 and 2.4 below and explained in the text. Seven of the 22 deferred parcels are partial deferrals where a portion of the parcel is deferred and a portion of the parcel is offered for lease. The seven partially deferred parcels have 5,840 federal mineral acres and 1,040 federal surface deferred, while 5,920 federal mineral acres and 1,080 federal surface acres will be offered for lease.

Table 2.2 Federal Acres Offered and Deferred in Alternative B

Alternative B	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Offered	86*	38,463	7,048
Deferred	22	16,148	2,891

***** Seven parcels are partial deferrals resulting in discrepancy totals.

Table 2.3 Deferrals due to Wildlife Concerns

Number	Parcel Number	Field Office	Deferred Mineral Acres	Reason for Deferral
1	WY-1302-038 in Part	NFO	240	Greater Sage-grouse
2	WY-1302-039 in Part	NFO	320	Greater Sage-grouse
3	WY-1302-040	NFO	318	Greater Sage-grouse
4	WY-1302-041	NFO	238	Greater Sage-grouse
5	WY-1302-042	NFO	356	Greater Sage-grouse
6	WY-1302-043	NFO	471	Greater Sage-grouse
7	WY-1302-048 in Part	NFO	720	Greater Sage-grouse
8	WY-1302-052 in Part	NFO	2,000	Greater Sage-grouse
9	WY-1302-054	NFO	2,240	Greater Sage-grouse
10	WY-1302-055 in Part	NFO	1560	Greater Sage-grouse
11	WY-1302-056	NFO	640	Greater Sage-grouse
12	WY-1302-066 in part	CFO	800	Greater Sage-grouse
13	WY-1302-072	NFO	82	Greater Sage-grouse
14	WY-1302-075	BFO	280	Greater Sage-grouse

Number	Parcel Number	Field Office	Deferred Mineral Acres	Reason for Deferral
15	WY-1302-091	CFO	74	Greater Sage-grouse
16	WY-1302-092	CFO	570	Greater Sage-grouse
17	WY-1302-094	CFO	600	Greater Sage-grouse
18	WY-1302-097 in Part	CFO	200	Greater Sage-grouse
19	WY-1302-111	CFO	1280	Greater Sage-grouse
			Total: 12,989	

IM WY-2012-019 directs the BLM to screen each parcel for Greater Sage-grouse habitat conservation. The first step of the screen is to identify if the parcel is within a Sage-grouse Core Area. Under step two of the screen, FOs are directed to identify if the parcel is within 11 square miles of contiguous, manageable, unleased federal minerals. If the parcel is part of 11 square miles of contiguous, manageable, unleased federal minerals then step 3A directs the BLM's Reservoir Management Group (RMG) to be contacted to identify any potential fluid mineral drainage concerns or to determine if the parcel is within an oil and gas unit. If there are not any drainage concerns or the parcel is not in an oil and gas unit the parcel is recommended for deferral from leasing until the RMP revision or amendment is finalized. If the parcel is not within 11 square miles of contiguous, manageable, unleased federal minerals then step 3B directs the FOs to determine if the parcel is within 0.60 mile of an occupied Sage-grouse lek. If the parcel is not within 0.60 mile of an occupied Sage-grouse lek then the parcel is recommended for lease with all appropriate land-use plan derived stipulations. Step four is to determine if the parcel is wholly or partial within 0.60 mile of an occupied Sage-grouse lek. If the parcel is wholly located within a 0.60 mile of an occupied Sage-grouse lek then the parcel is recommended for deferral if the parcel does not have any drainage concern or the parcel is not located inside an oil and gas unit. If the parcel is partially located within 0.60 mile of an occupied Sage-grouse lek then the parcel is divided up by 40 acre Geographic Coordinate Data Base (GCDB)/aliquot parts and all parts within or touching the 0.60 mile buffer are recommended for deferral if the parcel does not have any drainage concern or the parcel is not located inside an oil and gas unit.

One entire parcel comprising 280.00 acres in the Buffalo FO is recommended for deferral pending revision of the Buffalo RMP/EIS (Table 2.3). The mitigation measures for Greater Sage-grouse in the current Buffalo RMP do not correspond to the core area strategy outlined in the Governor's Executive Order, 2011-5, and this deferral would reserve decision space for Greater Sage-grouse core/connectivity areas for the RMP revision, allowing a broader and more comprehensive analysis of range-wide impacts consistent with federal and state conservation goals for the species. The BLM's Land Use Planning Handbook (H-1601 1) states (page 47): "During the amendment or revision process, the BLM should review all proposed implementation actions through the NEPA process to determine whether approval of a proposed action would harm resource values so as to limit the choice of reasonable alternative actions... Even though the current land use plan may allow an action, the BLM manager has the discretion

to defer or modify proposed implementation-level actions ... " At that time, this parcel would be re-evaluated to determine if it can be offered in consideration of the range of alternatives and the designated preferred alternative in the Draft EIS.

Four entire parcels and two partial parcels totaling 3,525 acres in the Casper FO are located in a Greater Sage-grouse core area and are recommended for deferral. These parcels in the Casper FO are recommended for deferral until completion of the Sage Grouse RMP Amendment.

Seven entire parcels and five partial parcels comprising 9,184 acres in the Newcastle FO are located in a Greater Sage-grouse core area and are recommended for deferral. All parcels meet the criteria in IM WY-2012-019 outlined above. The parcels in the Newcastle FO are recommended for deferral until completion of the Sage Grouse RMP Amendment.

Table 2.4 Deferrals due to Cultural Concerns

Number	Parcel Number	Total Mineral Acres	Reason for Deferral
1	WY-1302-002	120	ACEC Whoopup Canyon Petroglyph Site
2	WY-1302-009	2,040	Old Woman Creek Hills Sacred Site
3	WY-1302-010	1,000	Old Woman Creek Hills Sacred Site
Total: 3		3,160	

Three parcels are recommended for deferral within the Newcastle FO. Parcel WY-1302-002 is located in the Whoopup Canyon Area of Critical Environmental Concern (ACEC). Newcastle RMP management objective for Whoopup Canyon ACEC is to protect and study rock art; expand public education and interpretation in the area; protect cultural resource values from degradation; provide for wildlife and scenic values, and Native American concerns. Recent investigations have located additional sites associated with Whoopup Canyon and the actual boundary appears to be larger than the existing ACEC boundary as mapped in the 2000 RMP. In order to account for this new information, Newcastle FO recommends Parcel WY-1302-002 be deferred until completion of the Newcastle RMP revision.

Parcels WY-1302-009 and WY-1302-010 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 completion of Newcastle FO RMP revision 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.

2.5 Alternatives C – Offer All Parcels for Sale

Alternative C will offer all 101 parcels for sale and subsequent leasing as compared to Alternative B, which offered 86 parcels to be leased and the other 22 parcels were recommended for deferral. 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 2.5 Federal Acres Offered and Deferred in Alternative C

Alternative C	Number Parcels	Federal Mineral Acres	Federal Surface Acres
Offered	101	54,611	9,938
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 High Plains DO 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 in the three FO Interdisciplinary Team Checklists (IDTCs) which can be found in Appendix A, Interdisciplinary Team Checklists, and presented as issues in Chapter 1 (Section 1.6) of this EA. This is also where any mitigation is applied for each parcel based on the decisions from the respective RMP. This Chapter provides the baseline for comparison of alternatives for impacts and consequences described in Chapter 4. Refer to Appendix B, which provides a High Plains DO summary of stipulations applied by parcel.

3.2 General Setting

The proposed lease parcels are located in Campbell, Converse, Crook, Goshen, 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 greenhouse gases (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 (CO2), methane (CH4), nitrous oxide (N2O), water vapor; 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), noise 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) established air quality standards (NAAQS) for criteria pollutants. Criteria pollutants include carbon monoxide (CO),

nitrogen dioxide (NO2), ozone (O3), particulate matter (PM10 and PM2.5), sulfur dioxide (SO2), and lead (Pb). Air pollutant concentrations greater than the NAAQS would represent a risk to human health.

EPA has delegated of air quality to the State of Wyoming and is administered by the Department of Environmental Quality (WDEQ), State of Wyoming. 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.

The counties that lie within the jurisdictional boundaries of the High Plains DO are classified as in attainment of all state and national ambient air quality standards as defined in the Clean Air Act of 1977, as amended. Modeling conducted to date by the WYDEQ does not indicate that air quality is likely to exceed any limits specified by the Clean Air Act in the near future.

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 High Plains DO and relevant sites nearby. The WDEQ operates a PM10 monitors as part of the State and Local Monitoring Site (SLAMS) network). Monitoring other monitoring sites includes several 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 Sinks Canyon, South Pass and Yellowstone Park sites, which the BLM operates as part of the National Acid Deposition Program (NADP).

Table 3.1 Air Quality Monitoring Sites within the High Plains DO

County	Site Name	Type of Monitor Type	Parameter	Operating Schedule	Location	
					Longitude	Latitude
Campbell	Thunder Basin	SPM	O3, NOx & Met	Hourly	-105.3000	44.6720
	South Campbell County	SPM	O3, NOx, PM10 & Met	1/3 (PM10) & hourly (NOx & O3)	-105.5000	44.1470
	Belle Ayr Mine	SPM	NOx & PM2.5	1/3 (PM2.5) & hourly (NOx)	-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
	South Coal	WARMS	PM2.5 & Meteorology		-105.8378	44.9411
	Thunder Basin	IMPROVE	PM2.5, Nitrate, Ammonium, Nitric	1/3	-105.2874	44.6634

County	Site Name	Type of Monitor Type	Parameter	Operating Schedule	Location	
					Longitude	Latitude
Johnson	Buffalo	WARMS	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide & Meteorology	1/3 (PM2.5) & 1/7 (others)	-106.0189	44.1442
	Juniper	WARMS	PM2.5 & Meteorology	1/3 (PM2.5)	-106.2289	44.2103
	Cloud Peak	IMPROVE	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide & Meteorology	1/3	-106.9565	44.3335
Sheridan	Sheridan - Highland Park	SLAMS	PM10 & PM2.5	1/3 (PM10); 1/3 & 1/6 (PM2.5)	-107.0000	44.8060
	Sheridan - Police Station	SLAMS	PM10 & PM2.5	1/1 (PM10) & 1/3 & 1/6 (PM2.5)	-107.0000	44.8330
	Arvada	SPM	PM10		-106.1000	44.6540
	Sheridan	WARMS	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate & Sulfur Dioxide	1/3 (PM2.5) & 1/7 (others)	-106.8472	44.9336
Converse	Antelope Mine	SPM	NOx & PM2.5	1/3 (PM2.5) & hourly (NOx)	-105.4000	43.4270
Weston	Newcastle	WARMS	PM2.5, Nitrate, Ammonium, Nitric Acid, Sulfate, Sulfur Dioxide & Meteorology	1/3 (PM2.5) & 1/7 (others)	-104.1919	43.8731
	Newcastle	NADP	Wet deposition of ammonium, sulfate, metals	Weekly		

BLM assessed recent air quality conditions within the High Plains DO 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 High Plains DO is considered good in compliance with applicable NAAQS and WAAQS. Based on measurements in the area, visibility in the High Plains DO is considered excellent.

Table 3.2 Air Quality Conditions

Pollutant	Average Time	NAAQS ($\mu g/m^3$)	WAAQ S ($\mu g/m^3$)	Representative Concentrations	
				(ug/m^3)	Year
Carbon Monoxide[8] (CO)	1 hour	40,000	40,000	1979	2005
	8 hours	10,000	10,000	931	2005
Nitrogen Dioxide (NO_2)[4]	Annual	100	100	0.004	2006
Ozone (O_3)[5]	8 hours	147	157	0.079	2008
Particulate Matter (PM_{10})[7]	24 hours	150	150		
	Annual	None	50	17	2008
Particulate Matter ($PM_{2.5}$)[4]	24 hours	35	35		
	Annual	15	15	4.52	2008

Pollutant	Average Time	NAAQS ($\mu g/m^3$)	WAAQ S ($\mu g/m^3$)	Representative Concentrations	
				(ug/m^3)	Year
Sulfur Dioxide (SO_2) [6]	3 hours	1300[1]	1300		
	24 hours	365	260		
	Annual	80	60	0.6	2006

NAAQS National Ambient Air Quality Standards
PM_{10} particulate matter less than 10 microns in diameter WARMS
Wyoming Air Resource Monitoring System ug/m^3 micrograms per cubic meter.
$PM_{2.5}$ particulate matter less than 2.5 microns in diameter
WAAQS Wyoming Ambient Air Quality Standards

Sources: Wyoming DEQ 2004; EPA 2005

1 Secondary standard only, as there is no 3-hour federal primary standard for SO2.

2 Average not to be exceeded more than two times per year.

3 Average not to be exceeded more than two times in any 5 consecutive days.

4 Antelope Site 3, Converse County (56009081942602-1)

5 To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average O3 concentrations measured at each monitor within an area over each year must not exceed the standard. A year of O3 data is only considered if valid daily maximums are available for at least 75 percent of the ozone season.

6 Average filter pack concentrations for the Buffalo WARMS site

7 City County Bldg Center And C Streets, Casper, WY (560250001)

8 Data collected at Yellowstone National Park in 2005

3.3.1.2 Greenhouse Gas Emissions

Greenhouse gases that are included in the US Greenhouse Gas Inventory are: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). CO2 and methane (CH4) are typically emitted from combustion activities or are directly emitted into the atmosphere.

Currently, the Wyoming Department of Environmental Quality (WDEQ) Air Quality Division (AQD) does not regulate greenhouse gas emissions, although these emissions are regulated indirectly by various other regulations.

Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through both natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The primary greenhouse gases that enter the atmosphere as a result of anthropogenic activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases such as hydro-fluorocarbons, per- fluorocarbons, and sulfur hexafluoride. These synthetic gases are GHGs that are emitted from a variety of industrial processes.

Several activities occur within the High Plains DO that may generate greenhouse gas 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 (CO2) and methane (CH4). CO2 emissions result from the use of combustion engines, while methane can be released during processing. Wildland fires also are a source of other GHG emissions, while livestock grazing is a source of methane. A

description of the potential greenhouse gas emissions associated with the proposed leasing activities is included in Chapter 4.

Of the parcels that have been nominated for the High Plains DO portion of the February 2013 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 (RFDs) 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 High Plains DO. 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 the BLM Manual Section 8560.36, BLM lands, including wilderness areas not designated as Class I, are managed as Class II, which provides that moderate deterioration of air quality associated with industrial and population growth may occur.

Table 3.3 National Parks, Wilderness Areas, and National Monuments

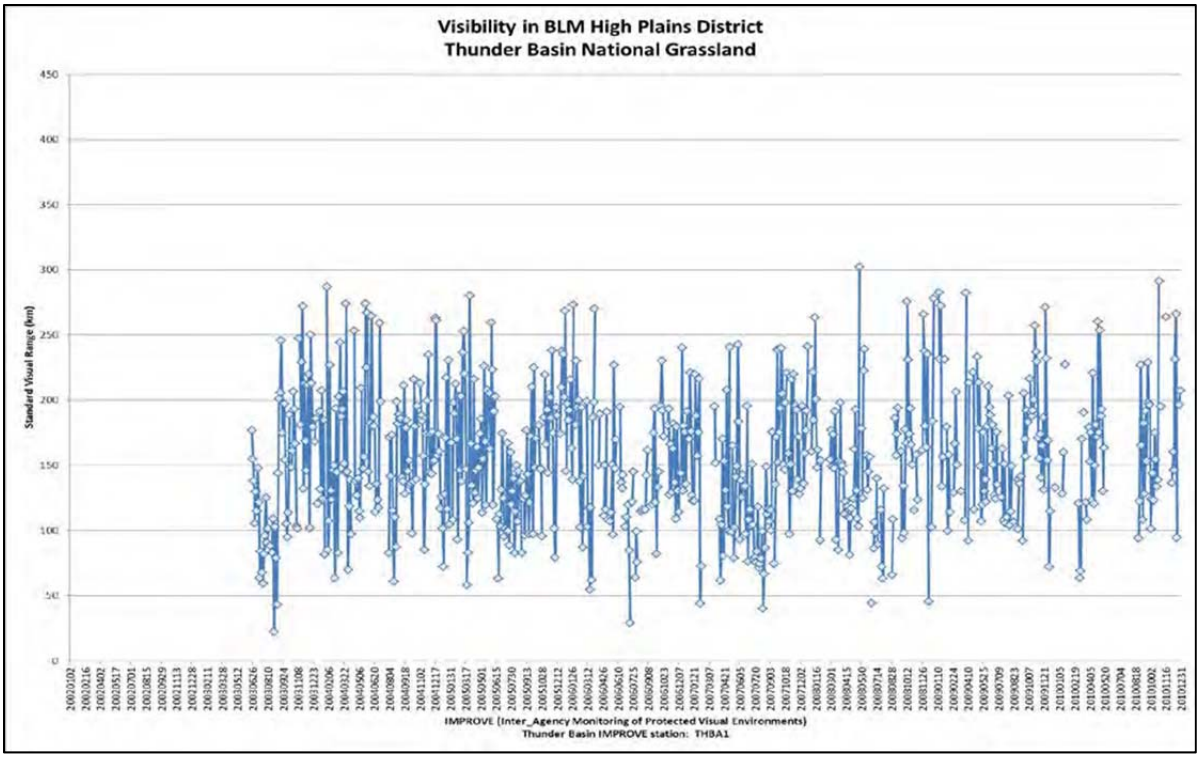
Area Name	Closest Distance to High Plains District (miles)	Direction from the High Plains District	Clean Air Act Status of the Area
Badlands National Park	>100	East	Class I
Bridger Wilderness Area	90	West	Class I
Cloud Peak Wilderness Area	within	---	Class II
Devils Tower National Monument	within	---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

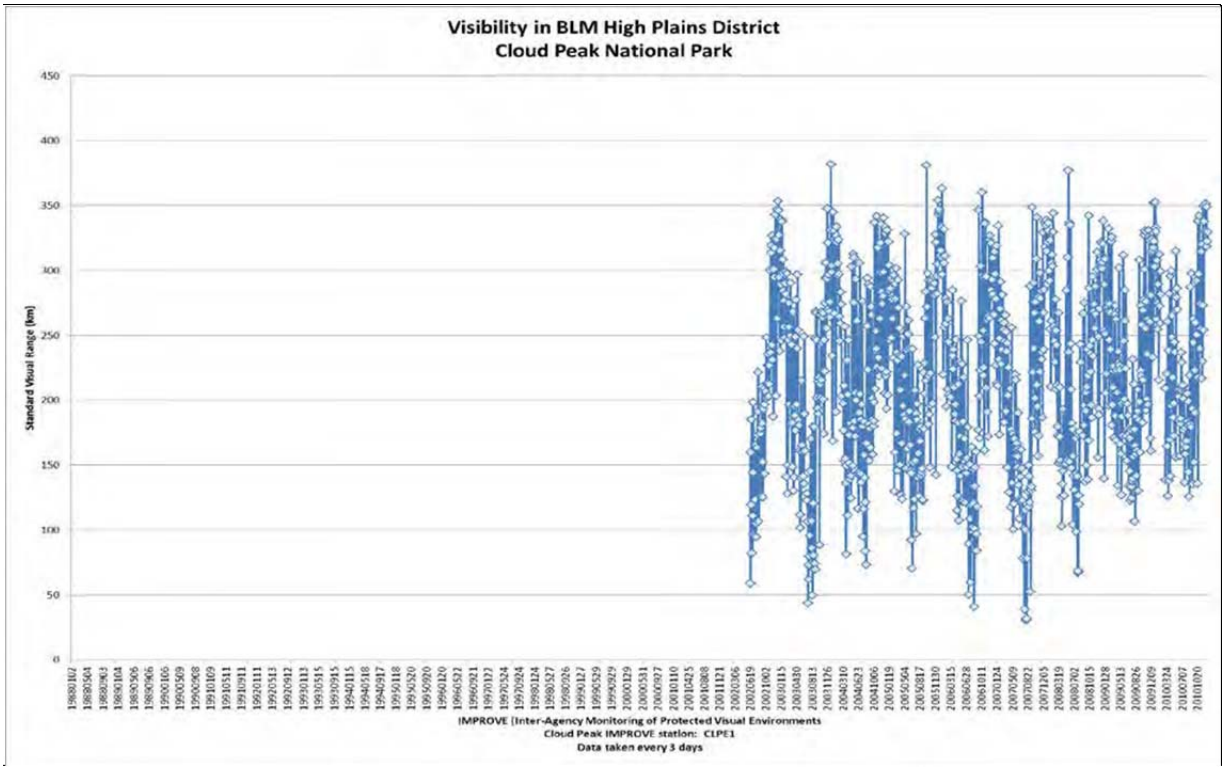
above, data collected at the Thunder Basin National Grasslands and Cloud Peak Wilderness IMPROVE monitoring sites have been used indirectly to visibility in the High Plains DO. Figure 3.2 presents visibility data for the Thunder Basin IMPROVE site for the period preceding 2010 and Figure 3.3 presents 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 High Plains DO, 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 3.2 Annual Visibility (SVR) for the Thunder Basin IMPROVE site



Source: IMPROVE 2010

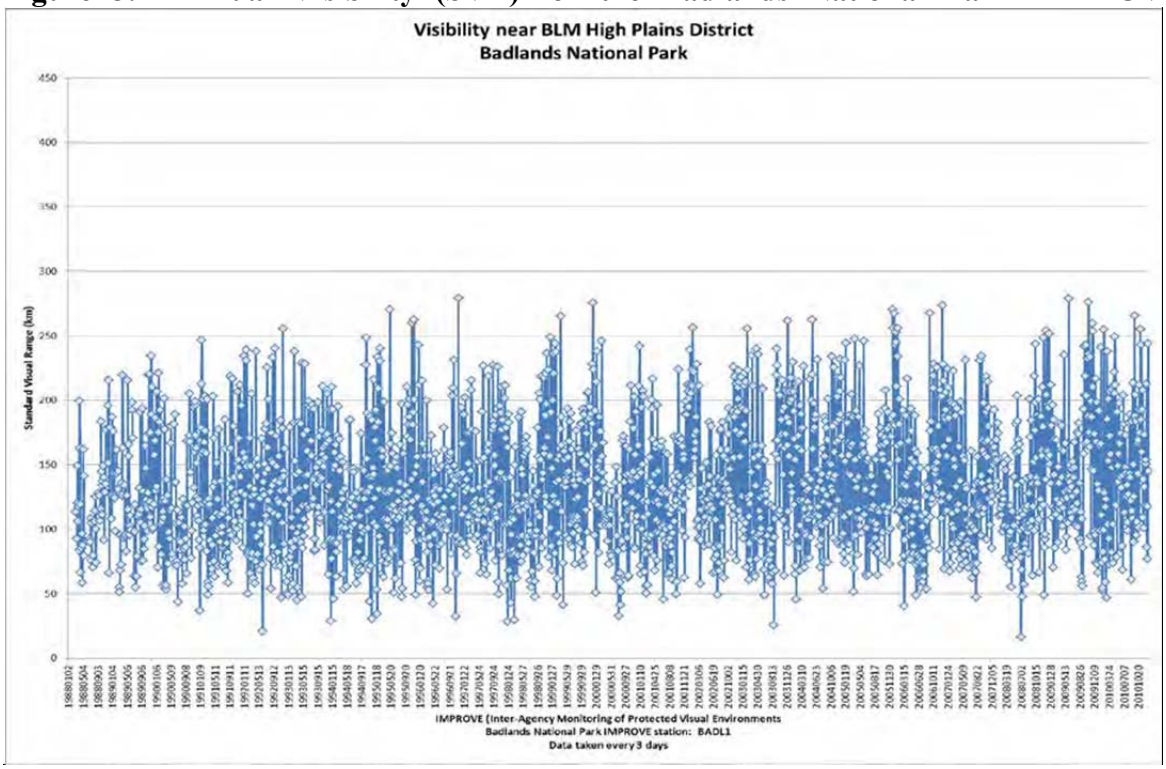
Figure 3.3 Annual Visibility (SVR) for the Cloud Peak IMPROVE site



Source: IMPROVE 2010

In addition to visibility measurements within the High Plains DO, Figure 3.4 presents visibility estimates SVR for the Badlands National Park site, located east of the High Plains DO, 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 is and this indicates a flat trend of SVR during this period at the Badlands monitor.

Figure 3.4 Annual Visibility (SVR) for the Badlands National Park IMPROVE site



Source: IMPROVE 2010

3.3.2 Coal Resources

Parcel WY-1302-080 in Converse County has been nominated over existing federal coal leases WYW-0322255 and WYW-128322 at the Antelope Mine. The following controlled surface use stipulation will be applied to Parcel WY-1302-080:

> (1) Surface use or occupancy shall not be allowed by oil and gas lessee(s), operating rights holder(s), and/or oil and gas operator(s) on this Federal oil and gas lease to conduct any oil and gas operation, including drilling for, removing, or disposing of oil and/or gas contained in the Federal coal leases WYW-0322255 and WYW-128322 unless a plan for mitigation of anticipated impacts is developed between the oil and gas and the coal lessees, and the plan is approved by the Authorized Officer; (2) as mapped on Casper Field Office GIS database; (3) for the purpose of protecting the first in time valid existing rights of the coal lessee, the Authorized Officer reserves the right to alter or modify any oil and gas operations on the lands described in this lease ensuring: a.) the orderly development of the coal resource by surface and/or underground mining methods; b.) coal mine worker safety; and/or c.)coal production rates or recovery of the coal resource. The oil and gas lessee(s), operating rights holder(s), and/or oil and gas operator(s) of this Federal oil and gas lease shall not hold the United States as lessor, coal lessee(s), sub-lessee(s), and/or coal operator(s) liable for any damage or loss of the oil and gas resource, including the venting of coal bed methane gas,

caused by coal exploration or mining operations conducted on Federal coal lease WYW-0322255 and WYW-128322.

A portion of Parcel WY-1302-501 has been nominated over existing federal coal lease WYW-177903 at Antelope Mine. The following controlled surface use stipulation has been applied to Parcel WY-1302-501 that falls over existing federal coal lease WYW-177903:

> CSU (1) Surface use or occupancy shall not be allowed by oil and gas lessee(s), operating rights holder(s), and/or oil and gas operator(s) on this Federal oil and gas lease to conduct any oil and gas operation, including drilling for, removing, or disposing of oil and/or gas contained in the Federal coal WYW-177903 unless a plan for mitigation of anticipated impacts is developed between the oil and gas and the coal lessees, and the plan is approved by the Authorized Officer; (2) as mapped on Casper Field Office GIS database; (3) for the purpose of protecting the first in time valid existing rights of the coal lessee, the Authorized Officer reserves the right to alter or modify any oil and gas operations on the lands described in this lease ensuring: a.) the orderly development of the coal resource by surface and/or underground mining methods; b.) coal mine worker safety; and/or c.) coal production rates or recovery of the coal resource. The oil and gas lessee(s), operating rights holder(s), and/or oil and gas operator(s) of this Federal oil and gas lease shall not hold the United States as lessor, coal lessee(s), sub-lessee(s), and/or coal operator(s) liable for any damage or loss of the oil and gas resource, including the venting of coal bed methane gas, caused by coal exploration or mining operations conducted on Federal coal lease WYW-177903.

3.3.3 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 lithic scatters, stone circle sites, cairns, historic 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 described below:

Historic Trails:

The Cheyenne to Black Hills Stage Line was a significant route to the Black Hills for mining operations beginning in 1876. During the first year, stagecoaches traveled north of Lusk to Hat Creek Station and then veered NE to enter the southern Black Hills. The following year this route was abandoned and north of Hat Creek the trail extended along the west edge of the Black Hills. Remnants of the trail exist as wagon ruts and swales. The trail was significant as a transportation route from 1877 to 1887 and is a historic property.

The Newcastle RMP contains a decision relating to the Cheyenne-Deadwood Trail which states:

> Areas within 0.25 mile, or the visual horizon, whichever is closer, of significant segments of historic trails that are listed on the NRHP, or that are eligible for listing on the NRHP, are avoidance areas for surface-disturbing activities.

Parcels WY-1302-001 and WY-1302-009 in the Newcastle FO have the following CSU applied:

> CSU (1) Surface occupancy or use within 1/4 mile or visual horizon of the trail, whichever is closer, may be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) entire lease; (3) protecting cultural and scenic values of the Cheyenne-Deadwood Trail.

Whoopup Canyon:

Petroglyphs within the Whoopup Canyon petroglyph site extend along 9.6 km of a canyon that cuts through sandstone cuestas on the western flank of the Black Hills in Wyoming. The site has 150 petroglyph panels. Most are Early Hunting style pecked images that depict game animals, hunting scenes, and humans conducting ceremonies (Tratebas, 1993; Tratebas, 2000). Experimental dating in 1991 by cation-ratio and ^{14}C methods suggested that the petroglyphs spanned thousands of years, ranging back possibly to more than 11,000 years.

Parcel WY-1302-002 in the Newcastle FO is located in the Whoopup Canyon Area of Critical Environmental Concern (ACEC). Newcastle RMP management objective for Whoopup Canyon ACEC is to protect and study rock art; expand public education and interpretation in the area; protect cultural resource values from degradation; provide for wildlife and scenic values, and Native American concerns. Management objectives include protection of valuable prehistoric petroglyphs and associated cultural resources pending further study. In relation to oil and gas leasing, the Newcastle RMP has the following NSO and surface occupancy stipulations:

> The public lands within the ACEC are open to consideration for mineral leasing with a no surface occupancy stipulation
>
> The requirements identified above for no surface occupancy stipulations on federal oil and gas or other federal mineral leases, will be applied, as appropriate, to split-estate lands (private surface over federal minerals), intermingled among or adjacent to the public lands in the ACEC, in relation to federal mineral exploration and development activities only. These include surface-disturbing activities, the use of explosives or blasting, geophysical exploration, mineral material sales, and mineral location.

Recent investigations have located additional sites associated with Whoopup Canyon and the actual boundary appears to be larger than the existing ACEC boundary as mapped in

the 2000 RMP. In order to account for this new information, Newcastle FO recommends Parcel WY-1302-002 be deferred until completion of the Newcastle RMP revision.

Old Woman Creek Hills:

Parcels WY-1302-009 and WY-1302-010 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 completion of Newcastle FO RMP revision 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.

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. 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.

The following stipulation will be applied to leases in the Newcastle FO which occur within the Lance Creek Formation:

> 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.

This stipulation is based on two decisions from the Newcastle RMP relating to mitigation of

paleontological resources (see Newcastle FO RMP, page 14). The stipulation has also been applied to numerous parcels since at least August of 1998. The stipulation will be applied to 13 parcels: WY-1302-014, WY-1304-015, WY-1302-016, WY-1302-017, WY-1302-018, WY-1302-019, WY-1302-021, WY-1302-022, WY-1302-023, WY-1302-024, WY-1302-025, WY-1302-038, and WY-1302-045.

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. Parcel 1302-022 in the Newcastle FO is located in the Whoopup Canyon Area of Critical Environmental Concern (ACEC). The management objectives for Whoopup Canyon ACEC are to protect and study rock art in the Whoopup Canyon area; expand public education and interpretation in the area; protect cultural resource values from degradation; provide for wildlife and scenic values, and Native American concerns. The following stipulation is applied to Parcel WY-1302-002:

> NSO (1) All lease parcels; (2) as mapped in Whoopup Canyon Petroglyph Site ACEC GIS and Newcastle RMP; (2) protecting valuable, irreplaceable, unique Whoopup Canyon Petroglyph Site ACEC resources.

Parcels WY-1302-095, WY-1302-096, WY-1302-097, WY-1302-098, and WY-1302-099 are located within the Wind River Basin Management Area (WRBMA) either partially or in their entirety. The WRBMA was designated in the Record of Decision and Approved Casper Resource Management Plan, decision number 7067. The decision 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.…*" Approximately 64% of the WRBMA is located within the Natrona Sage-grouse Core Area. Any parcels that are nominated within the boundaries of the WRBMA will be leased with minimum restrictions and will not be deferred for Greater Sage-grouse habitat conservation.

Any parcels that are partially located outside of the WRBMA will be evaluated for Greater Sage-grouse concerns and deferred in part if the appropriate screening criteria are met. Parcel WY-1302-097 is located both inside and outside the WRBMA; the portion outside the WRBMA will be deferred for Greater Sage-grouse habitat conservation.

3.3.6 Socioeconomic Resources

Local communities depend heavily upon oil, gas, and mining activities. Agriculture and tourism also support local economics. The State of Wyoming receives a percentage of the lease sale receipts as well as a portion of the royalties should a lease begin production. Furthermore, the county where the lease is located receives monies from the State of Wyoming's allocation. The proposed lease parcels are located in Campbell, Converse, Crook, Goshen, Natrona, Niobrara, and Weston Counties in Wyoming.

3.3.7 Surface Water Resources

Surface water hydrology within the area is typically determined by geology, 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.

Parcel WY-1302-092 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 of Henderson 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 Henderson Creek.

Parcels WY-1302-095 and WY-1302-096 in the Casper FO have 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 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.

3.3.8 Visual Resources Management

Parcel WY-1302-091 in the Casper FO is located in an area managed under Visual Resource

Management (VRM) Class I and II objectives. Parcel WY-1302-091 has the following stipulation:

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

Parcel WY-1302-002 in the Newcastle FO is within the Whoopup Canyon ACEC. The public lands within the ACEC will be managed consistent with the Class II visual resource management (VRM) classification. Parcel WY-1302-002 in the Newcastle FO has the following stipulation applied:

> CSU (1) Surface occupancy or use may be restricted to maintain Class II Visual Resource Management; (2) as specified in Newcastle Field Office RMP; (3) protecting Whoopup Canyon Petroglyph Site ACEC.

All of the remaining parcels nominated in the February 2013 Lease Sale are located in Class III and 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)

Section 7 of the Endangered Species Act (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 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 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, the BLM's Land Use Planning Handbook, Appendix C, Part E, Fish and Wildlife.

The current RMPs have evaluated the need to protect habitat necessary for the success of species identified through these regulations and policies. 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 Limitations (TLS) is the least stringent. TLS prohibits 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.

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 Information Memoranda WY-2012-019; additional policy was issued by the Washington Office BLM under Information Memoranda 2010-071.

3.3.9.1 Black-tailed Prairie Dog

Black-tailed prairie dogs historically inhabited short grass and mixed-grass prairies throughout the United States. Habitat loss and fragmentation, disease, and eradication programs remain serious threats to the species. Many special status wildlife species are found in prairie dog towns, including the black-footed ferret, and burrowing owl, mountain plover, and swift fox nest sites. Black-tailed prairie dog habitats generally occur throughout the High Plains District; however, most suitable habitat, especially arable lands and drainage bottoms, are located on private and state land. Table 3.5 displays a list of parcels with black-tailed prairie dog stipulations.

Table 3.5 February 2013 Oil and Gas Lease Parcels with Black-tailed Prairie Dog Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1302-005	2	NFO
WY-1302-011	2	NFO
WY-1302-012	2	NFO
WY-1302-014	2	NFO
WY-1302-020	2	NFO
WY-1302-052	2	NFO
WY-1302-053	1,2	CFO & NFO
WY-1302-074	1	CFO
WY-1302-081	1	CFO

The following stipulations apply to Table 3.5.

1. 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 Casper Field Office GIS database; (3) protecting *Cynomys ludovicianus* (Black-tailed prairie dog).

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 Newcastle Field Office GIS database; (3) protecting *Cynomys ludovicianus* (Black-tailed prairie dog).

3.3.9.2 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 High Plains DO, and the species is not known to occur. Table 3.7 contains a list of parcels that may contain potential habitat for blowout penstemon and have stipulations applied.

Table 3.6 February 2013 Oil and Gas Lease Parcels with Blowout Penstemon Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1302-073	1	CFO
WY-1302-097	1	CFO
WY-1302-111	1	CFO

The following stipulations apply to Table 3.6.

1. 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 Casper Field Office GIS database; (3) protecting *Penstemon haydenii* (Blowout penstemon).

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 High Plains DO. 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 High Plains DO there are approximately 3,624,598 acres of Greater Sage-grouse core areas (using 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 Area habitats and further limit degradation and fragmentation from human activity. The Wyoming Game and Fish Department (WGFD) have identified core areas which represent these relatively productive areas and have suggested special management for these areas.

There are many sources of habitat fragmentation, all of which may affect the Greater Sage-grouse. Industrial development, livestock 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 High Plains DO declined during the mid-1990s. Since 2004, the levels have remained constant or slightly increased. Population growth has varied throughout the High Plains DO based on specific local conditions, with some areas showing little change while other areas have had a

recent increase in lek count numbers. To promote Greater Sage Grouse Conservation, additional restrictions on O&G leases are needed to limit potential adverse impacts from any development activities. Table 3.7 contains a list of parcels with Greater Sage-grouse stipulations.

Table 3.7 February 2013 Oil and Gas Lease Parcels with Greater Sage-grouse Stipulations

Parcel Number	Stipulation(s)	Within Core/Connectivity Area	Field Office
WY-1302-004	7,9	No	NFO
WY-1302-012	7,9	No	NFO
WY-1302-017	7,9	No	NFO
WY-1302-024	7,9	Core	NFO
WY-1302-026	7,9	No	NFO
WY-1302-052	7,8,9	Core	NFO
WY-1302-053	1,4,7,9	Core	CFO& NFO
WY-1302-054	7,9	Core	NFO
WY-1302-055	7,8,9	Core	NFO
WY-1302-056	7,9	Core	NFO
WY-1302-066	1,4	Core	CFO
WY-1302-068	7,9	Core	NFO
WY-1302-069	7,9	Core	NFO
WY-1302-072	7,9	Core	NFO
WY-1302-073	1,4	Core	CFO
WY-1302-075	5,6	Core & Connectivity	BFO
WY-1302-076	5,6	No	BFO
WY-1302-083	1,4	No	CFO
WY-1302-084	1,4	No	CFO
WY-1302-091	2,3,4	Core	CFO
WY-1302-092	2,3,4	Core	CFO
WY-1302-094	1,4	Core	CFO
WY-1302-095	1,4	Core	CFO
WY-1302-096	1,4	Core	CFO
WY-1302-097	1,4	Core	CFO
WY-1302-098	1,4	Core	CFO
WY-1302-111	1,4	Core	CFO

The following stipulations apply to Table 3.7.

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

4. 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 Casper Field Office GIS database; (3) protecting *Centrocercus urophasianus* (Greater Sage-grouse).
5. TLS (1) Mar 15 to Jul 15; (2) as mapped on the Buffalo Field Office GIS database; (3) protecting nesting Greater Sage-grouse.
6. 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).
7. TLS (1) Mar 15 to Jul 15; (2) as mapped on the Newcastle Field Office GIS database; (3) protecting nesting Greater Sage-grouse.
8. 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.
9. 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 Newcastle Field Office GIS database; (3) protecting *Centrocercus urophasianus* (Greater Sage-grouse).

3.3.9.4 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 Endangered Species Act in Colorado, but was removed from Endangered Species Act protections in Wyoming on July 10, 2008. On August 4, 2011, its protection under the Endangered Species Act was reinstated in Wyoming. In the High Plains DO 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. Table 3.8 contains a list of parcels with Preble's meadow jumping mouse stipulations.

Table 3.8 February 2013 Oil and Gas Lease Parcels with Preble's Meadow Jumping Mouse Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1302-013	1	CFO

1. 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 Casper Field Office GIS database; (3) Zapus hudsonius preblei (Preble's meadow jumping mouse).

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 High Plains DO. Nine of the 10 raptor species breed in Wyoming; the remaining species—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 High Plains DO. Protective measures for raptor nesting and roosting habitats are identified in RMPs. Table 3.9 contains a list of parcels with raptor stipulations.

Table 3.9 February 2013 Oil and Gas Lease Parcels with Raptor Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1302-010	2	NFO
WY-1302-019	2	NFO
WY-1302-024	2	NFO
WY-1302-038	2	NFO
WY-1302-039	2	NFO
WY-1302-041	2	NFO
WY-1302-042	2	NFO
WY-1302-043	2	NFO
WY-1302-044	2	NFO
WY-1302-045	2	NFO
WY-1302-046	2	NFO
WY-1302-050	2	NFO
WY-1302-052	2	NFO
WY-1302-054	2	NFO
WY-1302-055	2	NFO
WY-1302-056	2	NFO
WY-1302-066	1	CFO
WY-1302-073	1	CFO
WY-1302-074	1	CFO
WY-1302-075	3	BFO
WY-1302-078	1	CFO
WY-1302-079	1	CFO
WY-1302-081	1	CFO
WY-1302-082	1	CFO
WY-1302-083	1	CFO
WY-1302-084	1	CFO

WY-1302-087	1	CFO
WY-1302-092	1	CFO
WY-1302-095	1	CFO
WY-1302-096	1	CFO
WY-1302-097	1	CFO
WY-1302-098	1	CFO
WY-1302-099	1	CFO
WY-1302-501	1	CFO

The following stipulations apply to table 3.9.

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

3.3.9.6 Species Affected by North Platte River Drainage

The Casper RMP Biological Assessment outlines concerns and conservation measures for the cumulative effects of Platte River water depletions on Platte River species such as the whooping crane, interior least tern, piping plover, Eskimo curlew, pallid sturgeon, western prairie fringed orchid, and designated critical habitats of the whooping crane and piping plover. Table 3.10 contains a list of parcels with stipulations to reduce depletion of water affecting species in the Platte River watershed.

Table 3.10 February 2013 Oil and Gas Lease Parcels with Platte River Drainage System Water Depletion Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1302-013	1	CFO
WY-1302-092	1	CFO

1. 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 Casper

Field Office GIS database; (3) Species affected by water depletions from the Platte River system.

3.3.9.7 Ute ladies' Tresses

The Ute ladies'-tresses is an Endangered Species Act threatened species The Ute ladies'-tresses, is a local endemic known to occur in Converse, Goshen, and Niobrara counties (Fertig 2001b). 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. To protect potential habitats or unknown populations special stipulations are identified by RMPs. Table 3.11 contains a list of parcels with Ute ladies' tresses stipulations.

Table 3.11 February 2013 Oil and Gas Lease Parcels with Ute Ladies' Tresses Stipulations

Parcel Number	Stipulation(s)	Field Office
WY-1302-083	1	CFO
WY-1302-087	1	CFO

The following stipulations apply to table 3.11.

1. 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 Casper Field Office GIS database; (3) protecting *Spiranthes d*iluvialis (Ute ladies'-tresses).

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 Chapter 3) 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). BLM has not received any development proposals concerning the lease parcels addressed in this EA.

Coal, Recreation and Special Management Areas, Water and Visual Resource Management were found to not have any impacts if the proper stipulations were attached as directed from the appropriate RMP in Chapter 3. 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 here.

4.2 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.

4.2.1 Air Resources

4.2.1.1 Air Quality

4.2.1.1.1 Alternative A – No Action

Under the No Action Alternative, none of the 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) in the High Plains DO 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 101 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 this sale at some point in the future, as long as the area remains open to fluid mineral leasing.

4.2.1.1.2 Alternative B – Proposed Action

Offering 86 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 High Plains DO varies among the three field offices. A comparison of parcels with federal mineral and federal surface acres is found in Table 4.1 below:

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	86*	38,463	7,048
Alternative C	101	54,611	9,938

*Seven parcels are partial deferrals resulting in discrepancy totals.

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 High Plains DO 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 High Plains DO 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 High Plains DO, specifically within the Buffalo FO, since the late 1990s.

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 (Reasonable Foreseeable Development) considers these assumptions and, on a field office-wide basis, is still valid for both the Buffalo and Casper FOs. Newcastle FO did not have an RFD for their RMP.

4.2.1.1.3 Alternative C – Offer All Parcels for Sale

Under Alternative C, all 101 parcels would be offered for competitive sale in February 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.

4.2.1.2 Green House Gas Emissions

4.2.1.2.1. Alternative A – No Action

Under the No Action Alternative, none of the 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) in the High Plains DO 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 101 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.

4.2.1.2.2. Alternative B – Proposed Action

Offering 86 parcels for competitive sale would have no direct impacts to greenhouse gas emissions. Any potential effects to greenhouse gas emissions would occur when the leases were sold and subsequently developed. APD permitting trends within the High Plains DO varies among the three field offices. A comparison of parcels with federal mineral and surface acres is found in Table 4.2 below.

Table 4.2 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	86	38,463	7,048
Alternative C	101	54,611	9,938

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 (CCS) 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 (WRAP). 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 I*nventory* report discloses that activities in Wyoming accounted for approximately 56 million metric tons (mmt) of *gross* carbon dioxide equivalent (CO2e) emissions in 2005, an amount equal to 0.8% of total US gross GHG emissions. These emission estimates focus on activities in Wyoming and are *consumption-based;* they exclude emissions associated with electricity that is exported from the state. Wyoming's gross GHG emissions increased 25% from 1990 to 2005, while national emissions rose by only 16% from 1990 to 2004. Annual sequestration (removal) of GHG emissions due to forestry and other land-uses in Wyoming are estimated at 36 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_2 e 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 High Plains DO. 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 High Plains DO. 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 High Plains DO 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 the Proposed Action Alternative.

4.2.1.2.3. Alternative C – Offer All Parcels for Sale

Under this alternative, all 101 parcels within the High Plains DO would be offered for sale in February, and subsequent leases would be issued with the appropriate stipulations (Appendix C, Lease Parcel Lists). Offering all 101 parcels for leasing under Alternative C could increase the opportunity for surface disturbing activities, drilling, and production. The potential for greenhouse gas emissions would be similar to, but have a higher probability of occurring in larger amounts when compared to Alternative B.

4.2.1.3. Visibility

4.2.1.3.1. Alternative A – No Action

Under the no action alternative, none of 101 parcels in the High Plains DO 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 101 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.

4.2.1.3.2. Alternative B – Proposed Action

Offering 86 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.

4.2.1.3.3. Alternative C – Offer All Parcels for Sale

Offering all 101 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.

4.2.1.4. Mitigation Measures for Air Resources

Best management practices (BMPs) such as those used to reduce fugitive dust emissions, air quality, and greenhouse gas emissions 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 US 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 (COAs) 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 US Greenhouse Gas Emissions and Sinks: 1990-2006* by the

EPA, data shows that adoption by industry of the BMP 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.

4.2.1.5. 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.

4.2.1.6. 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 well as future APDs, facility applications are approved. Site-specific review would help in application of these requirements.

4.2.2. Heritage Resources

4.2.2.1 Alternative A – No Action

Under the No Action Alternative, none of the 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) in the High Plains DO 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 101 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.

4.2.2.2. Alternative B – Proposed Action

Under this alternative, 86 parcels (38,463 federal mineral acres and 7,048 federal surface acres) would be offered for lease with three parcels deferred because of cultural resource concerns. Deferral of parcels WY-1302-002, WY-1302-090, and WY-1302-010 would allow for the collection and analysis of additional resource information. The parcels contain significant historic properties or sites that have significance to tribes and removing the areas from leasing or establishing protective lease stipulation may be necessary to adequately protect resource values. The parcels would be deferred until plan amendments or revisions to Newcastle FO RMP address land use allocations related to the site specific sites. 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, 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.

4.2.2.3. Alternative C – Offer All Parcels for Sale

Under Alternative C, all 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) would be offered for competitive sale in February, and subsequent leases would be issued. It is possible that an operator may propose impacts to the site in parcels WY-1302-002, WY-1302-009 and WY-1302-010 that may be impossible to mitigate. Other cultural resources may be impacted under this alternative, but impacts would be avoided or mitigated as discussed above in Alternative B.

4.2.2.4. 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.

4.2.2.5. Residual Impacts

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

4.2.2.6. 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.

4.2.3. Paleontology Resources

4.2.3.1. Alternative A – No Action

Under the No Action Alternative, none of the 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) parcels in the High Plains DO 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 101 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.

4.2.3.2. Alternative B – Proposed Action

Under this alternative, 86 parcels (38,463 federal mineral acres and 7,048 federal surface acres)

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 thirteen (13) parcels. The FOs would consider site specific impacts during the APD phases. Proposed impacts would be avoided or mitigated.

4.2.3.3. Alternative C – Offer All Parcels for Sale

Under Alternative C, all 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) would be offered for competitive sale in February, and subsequent leases would be issued. Lease stipulations requiring inventory prior to surface disturbance would be added to 13 parcels. The FOs would consider site specific impacts during the APD phases. Proposed impacts would be avoided or mitigated.

4.2.3.4. 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.

4.2.4. Socioeconomic Resources

4.2.4.1. Alternative A – No Action

Under this alternative none of the 101 parcels, consisting of 54,611 federal mineral acres and 9,938 federal surface acres, 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, 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 slight reduction in domestic production of oil and gas. This would likely result in reduced federal and State royalty income, and the potential for federal land to be drained by wells on adjacent private or state land. The only impact resulting from the No Action Alternative would be to socioeconomics.

4.2.4.2. Alternative B – Proposed Action

Under this alternative, 86 parcels, consisting of 38,463 federal mineral acres and 7,048 federal surface acres, would be offered for lease. This would result in a reduction in revenue for federal and State government compared to Alternative C, where all parcels are offered for sale. The actual amount of the reduction is not known. At the leasing stage 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 fewer royalties than Alternative C.

4.2.4.3 Alternative C – Offer All Parcels for Sale

Under this alternative all 101 parcels, consisting of 54,611 federal mineral acres and 9,938 federal surface acres, would be offered for lease. This would all allow the most revenue for the federal and State government. In addition, subsequent development and production is

anticipated to be highest under this alternative. This would result in the greatest amount of royalties among the three alternatives.

4.2.5. Wildlife and Special Status Species (Plant and Animal)

4.2.5.1. Alternative A – No Action

Under the No Action Alternative, none of the 101 parcels nominated in the High Plains DO 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 101 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.

Greater Sage-grouse core areas/connectivity habitats were identified by the Wyoming Governor's Sage-Grouse Implementation Team (SGIT) in consultation with the BLM. Approximately 25,354 federal mineral acres of Greater Sage-grouse core areas/connectivity habitats would not be offered for lease in this O&G lease sale.

4.2.5.2. Alternative B – Proposed Action

Under this alternative, 86 parcels would be offered for sale while 15 entire parcels and 7 partial parcels would be deferred. Twelve entire parcels of these and seven partial parcels encompassing 12,989 acres would be deferred due to Greater Sage-grouse core area concerns and to retain manageability of Greater Sage-grouse habitat until RMP revisions or Greater Sage-grouse amendments are completed. Parcel WY-1302-075, located in the Buffalo Field Office, encompassing 280.000 acres would be deferred due to both core area (120 acres) and connectivity area (160 acres) concerns (Table 2.3).

All parcels were screened against the Greater Sage-grouse core area screens (see Appendix D, Field Office Screens, for specific parcel determinations). IM WY-2012-019 directs the BLM to screen each parcel for Greater Sage-grouse habitat conservation. The first step of the screen is to identify if the parcel is within a Sage-grouse Core Area. Under step two of the screen, FOs are directed to identify if the parcel is within 11 square miles of contiguous, manageable, unleased federal minerals. If the parcel is part of 11 square miles of contiguous, manageable, unleased federal minerals then step 3A directs the BLM's Reservoir Management Group (RMG) to be

contacted to identify any potential fluid mineral drainage concerns or determine if the parcel is within an oil and gas unit. If there are not any drainage concerns or the parcel is not in and oil and gas unit the parcel is recommended for deferral from leasing until the RMP revision or amendment is finalized. If the parcel is not within 11 square miles of contiguous, manageable, unleased federal minerals then step 3B directs the FOs to determine if the parcel is within 0.60 mile of an occupied Sage-grouse lek. If the parcel is not within 0.60 mile of an occupied Sage-grouse lek then the parcel is recommended for lease with all appropriate land-use plan derived stipulations. Step four is to determine if the parcel is wholly or partial within 0.60 mile of an occupied Sage-grouse lek. If the parcel is wholly located within a 0.60 mile of an occupied Sage-grouse lek then the parcel is recommended for deferral if the parcel does not have any drainage concern. If the parcel is partially located within 0.60 mile of an occupied Sage-grouse lek then the parcel is divided up by 40 acre GCDB/aliquot parts and all parts within or touching the 0.60 mile buffer are recommended for deferral if the parcel does not have any drainage concern. Post-lease projects within core areas would be analyzed as directed by IM WY-2012-019 or current guidance.

At the time development activities are proposed, 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 prohibitions 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 High Plains DO, 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.

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, antelope, and elk. 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) can impact wildlife survival and productivity.

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 are typically required at the APD stage to identify occupied habitats.

Impacts from surface-disturbing activities are anticipated for black-tailed prairie dogs. Surface disturbance is anticipated to have localized adverse impacts to prairie dog habitats including temporary and permanent loss of habitats, fragmentation, and degradation of habitat. Reductions in prairie dog populations may affect other grassland species associated with prairie dog towns, including mountain plover, burrowing owl, swift fox, and black-footed ferret. Site-specific mitigation measures to help protect black-tailed prairie dogs and associated habitats would be developed at the APD stage, if necessary.

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 threatened and endangered species may be required at the APD stage.

4.2.5.3. Alternative C – Offer All Parcels for Sale

Under this alternative, all 101 parcels (54,611 federal mineral acres and 9,938 federal surface acres) located within the High Plains DO would be available for competitive sale in February 2013, and subsequent leases would be issued with the stipulations detailed in Appendices C.

Under Alternative C, approximately 25,354 federal mineral acres of Greater Sage-grouse core areas/connectivity habitats would be available for oil and gas exploration and development activities. 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.

4.2.5.4. Mitigation Measures

Adding stipulations for parcels within the Buffalo, Casper, and Newcastle RMP's for mapped wildlife habitat are 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.

4.2.5.5. Residual Impacts

No residual impacts would occur from the 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.

4.2.5.6. Monitoring and/or Compliance

Continued monitoring and compliance is an integral part of lease administration. When a project is constructed in 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 were to 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.

4.3. Cumulative Impacts Analysis

The cumulative impacts assessment area for this EA is the High Plains DO which consists of Buffalo FO, Casper FO, and 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, including those parcels listed in the Proposed Action, 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 High Plains DO. The Buffalo FO had over 31,000, 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 High Plains DO. 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

High Plains DO 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.

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, Threatened and Endangered, and Sensitive Species Resources the cumulative impact of 86 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 this 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 Checklist in Appendix A 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 Conclusions
Joe Sandrini	Wyoming Game and Fish Department – Biologist	See project file
Bud Stewart	Wyoming Game and Fish Department – Dept. Energy Development Biologist	See project file
John Emmerich	Wyoming Game and Fish Department – Deputy Director	See project file
Justin Binfet	Wyoming Game and Fish Department – Wildlife Management Coordinator.	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 June 5, 2012. A press release announcing the availability of the EA for comments was e-mailed to local media on July 23, 2012. The press release stated that the comment period for the EA would run until August 22, 2012. In addition, informational postcards were mailed to affected landowners on or about July 25, 2012 and Native American tribes on or about July 24, 2012. 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 Expressions of Interest (EOI).

5.3.1. Comment Analysis

The High Plains DO received two comment letters resulting in 8 comments on the EA. One letter consisted of actual comments on the EA. A summary of the comments and responses to those comments are attached to this EA under Appendix F, Comments and Responses.

5.4. List of Preparers

Table 5.4 List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Mike Robinson	DO Resource Advisor, Energy, Lands, & Minerals.	Project Manager
G.L. "Buck" Damone III	Buffalo FO, Lead Archaeologist	Cultural Resources, Paleontology
Shane Gray	Casper FO, Wildlife Biologist	Wildlife, Threatened and Endangered Species and Special Status Species
John Kelley	Buffalo FO, Planning and Environmental Coordinator	FO Reviews
Kathleen Lacko	Casper FO, Planning and Environmental Coordinator	Casper FO Lead
Andrea Meeks	Solid Mineral Specialist	Coal Reviews
Debby Green	Buffalo FO, Natural Resource Specialist	Buffalo FO Lead, Reviews
Jim Hutchinson	Newcastle FO, PET	Newcastle FO Reviews
Rod Randall	Newcastle FO, Physical Scientist	Newcastle FO Lead
Alice Tratebas	Newcastle FO Archaeologist	Archaeology
Donald Brewer	Buffalo FO, Wildlife Biologist	Wildlife, Threatened and Endangered Species and Special Status Species
Allison Barnes	Buffalo FO Outdoor Recreation Planner	Wilderness, Recreation
Jude Carino	Casper FO, Archaeologist	Cultural Resources, Paleontology
Dora Ridenour	Casper FO, Archaeologist	Cultural Resources, Paleontology