DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Project: October 2011 Competitive Oil and Gas Lease Sale
EA Log Number: DOI-BLM-NM-P020-2011-0867-EA
Location: Various Locations in Eddy and Lea County, New Mexico.

Decision Record

The decision is to accept the Preferred Alternative (Alternative C) and lease nine (9) parcels offered for sale in the October 19, 2011 Competitive Oil and Gas Lease Sale, totaling 4,919.65 acres of combined federal minerals with the addition of lease stipulations and notices to certain parcels. The BLM will not lease for oil and gas leasing eight (8) parcels covering 4,054.32 acres. The Preferred Alternative is in compliance with the 1988 Carlsbad Resource Management Plan, as amended.

The following nine (9) parcels will be leased with stipulations presented in the table below:

Parcel	Comments	Acres
NM-201110-001 T.0230S, R.0230E, NM PM, NM Sec. 004 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	640.000
NM-201110-002 T.0230S, R.0230E, NM PM, NM Sec. 019 LOTS 4; 019 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	122.800
NM-201110-009 T.0160S, R.0300E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW,SE; 031 N2NE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-16 Raptor Nests and Heronries SENM-S-19 Playas and Alkali Lakes Playa SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	393.150
NM-201110-015 T.0230S, R.0340E, NM PM, NM Sec. 001 LOTS 1-4; 001 S2N2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 – POD	320.440

NM-201110-017 T.0250S, R.0360E, NM PM, NM Sec. 004 LOTS 3,4; 004 S2NW,S2; 005 LOTS 1-4; 005 S2N2,S2; 006 LOTS 7; 006 E2SW,SE; 007 LOTS 1,2; 007 NE,E2NW,N2SE; 009 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-20 Springs, Seeps and Tanks Earthen reservoir SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	2443.450
NM-201110-018 T.0250S, R.0360E, NM PM, NM Sec. 007 LOTS 3,4; 007 E2SW; 018 LOTS 1,2; 018 E2NW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	319.640
NM-201110-019 T.0250S, R.0360E, NM PM, NM Sec. 019 E2; 020 NWNW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens Windmill	360.000
NM-201110-021 T.0250S, R.0360E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.170
NM-201110-023 T.0260S, R.0360E, NM PM, NM Sec. 013 W2E2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.000

The following 8 parcels will not be offered and leased and have been either deferred or deleted from the October 2011 Lease Sale:

Parcel	Comments	Acres
NM-201110-003 T.0180S, R.0240E, NM PM, NM Sec. 033 NWNW,S2NW,S2;	Parcels -003, -004, -005, -020, -022 and -024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.	440.000
NM-201110-004 T.0190S, R.0240E, NM PM, NM Sec. 031 LOTS 1-4; 031 E2,E2W2;	Parcels -003, -004, -005, -020, -022 and -024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.	637.600

NM-201110-005 T.0190S, R.0240E, NM PM, NM Sec. 033 ALL;		Parcels -003, -004, -005, -020, -022 and -024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.	640.000
NM-201110-007 T.0250S, R.0250E, NM PM, NM Sec. 030 LOTS 3-4; 030 E2,SENW,E2SW;		Parcel -007 is located within in an area nominated as a potential Area of Critical Environmental Concern (ACEC). We are deferring the parcel until we complete the relevance and importance criteria for this nominated area.	517.280
NM-201110-013 T.0230S, R.0330E, NM PM, NM Sec. 006 LOTS 1-7; 006 S2NE,SENW,E2SW,SE; 007 LOTS 1-4; 007 NE,E2W2,S2SE;		Parcel -013 is located along the outer boundary of a Habitat Evaluation Area (HEA). This parcel is being deferred in order to determine whether the habitat will be included within the existing HEA. If it is determined to have the necessary habitat type present the added acreage will be included with the HEA and be considered as part of the evaluation process to be converted and managed as a viable habitat area (HA). Criteria for managing land within the 17 HEAs was designed in the 2008 SSS-RMPA, but can be used in areas that have suitable habitat along with successful reclamation. We are deferring the parcel until this process can be evaluated and completed.	1179.440
NM-201110-020		Parcels -003, -004, -005, -020, -022 and	160.000

T.0250S, R.0360E, NM PM, NM Sec. 028 SE;		-024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.	
NM-201110-022 T.0250S, R.0360E, NM PM, NM Sec. 033 S2;		Parcels -003, -004, -005, -020, -022 and -024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.	320.000
NM-201110-024		Parcels -003, -004, -005, -020, -022 and	160.000

T.0260S, R.0360E, NM PM, NM Sec. 024 W2W2;	-024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.	

Alternatives Considered:
The EA considered three alternatives: the No Action Alternative, the Proposed Action and the Preferred Alternative. The No Action Alternative was not selected because it does not meet the purpose and need. The proposed action considered leasing seventeen (17) parcels that are in conformance with the RMP. The preferred alternative considered leasing nine (9) parcels with stipulations that will protect resources, deferring an additional 8 parcels.

Rationale:

The parcels described in Appendix 1 of the EA were reviewed by an interdisciplinary group of specialists at the CFO. The purpose of the review was to determine if the parcels were in areas open to oil and gas leasing; if leasing was in conformance with the existing RMP and Amendments; if new information had been developed which might affect leasing suitability; to ensure that appropriate lease stipulations were attached to each lease parcel; and to verify that appropriate consultations had been conducted.

The preferred alternative was selected because it addressed resource values that are currently being evaluated through the RMP revision, the HEA and a proposed land exchange with the State of New Mexico.
The list below identifies those parcels that are in conformance with existing management plans, but are being deferred in order to develop stipulations to further protect resource concerns within the parcel boundary or those areas being deferred for other planning processes.

> Parcel -007 is located within in an area nominated as a potential Area of Critical Environmental Concern (ACEC). We are deferring the parcel until we complete the relevance and importance criteria for this nominated area.

Parcel -013 is located along the outer boundary of a Habitat Evaluation Area (HEA). This parcel is being deferred in order to determine whether the habitat will be included within the existing HEA. If it is determined to have the necessary habitat type present the added acreage will be included with the HEA and be considered as part of the evaluation process to be converted and managed as a viable habitat area (HA). Criteria for managing land within the 17 HEAs was designed in the 2008 SSS-RMPA, but can be used in areas that have suitable habitat along with successful reclamation. We are deferring the parcel until this process can be evaluated and completed.

Parcels -003, -004, -005, -020, -022 and -024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prairie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for beneficial exchange property.

Approval of the preferred alternative will allow the BLM to lease these nine (9) parcels with stipulations. The attached leasing stipulations will minimize environmental impacts. Potential analysis of surface disturbing activities was analyzed in the EA; however, this does not preclude CFO from requiring site-specific surface moves or adjustments if development of a lease occurs as a result of this action to minimize impacts to resources. The determining factors weighed by the BLM in reaching this decision are provided below:

- There are no major issues involved.

- There are no unique characteristics within the project area to be affected (e.g., park lands, wetlands, prime or unique farm lands).

- There are no adverse impacts to endangered or threatened plant or animal species or their habitats.

- The project and its potential effects on the quality of the human environment are neither controversial nor do they involve unique or unknown results.

- The proposal is in conformance with all federal, state, and local planning and laws imposed for the protection of the environment.

The professional opinion of BLM biologists, using BLM inventory and monitoring data, is that no federally listed threatened, endangered, or proposed species would be adversely affected by sale of the lease parcels. Effects of oil and gas leasing and development on threatened or endangered species were analyzed in Section 7 consultation (Cons. # 2-22-96-F-128, Cons. #22420-2007-TA-0033). No new information has been uncovered which would change that

analysis. Additional review and analysis would occur when site specific proposals for development are received.

New information regarding greenhouse gas emissions and climate change has been developed since the RMP and Amendments. This information has been incorporated into the analysis of the alternatives. Analysis determined that leasing the subject tracts could lead to eventual development which would result in small incremental increases in GHG emissions. These emissions will be minimized by special conditions of approval developed for specific development proposals. It is unknown at this time the significance of these emissions on climate and it has been determined that additional analysis would not lead to further clarification of these impacts.

Mitigating measures and/or stipulations were considered and analyzed in the environmental assessment. Appropriate lease stipulations and lease notices will be attached to individual parcels as listed in the EA. Interim and final reclamation will be required for any development on the lease following the standards in the Gold Book.

Public Involvement:

The parcels nominated for this sale, along with the appropriate stipulations from the RMP and Amendments, were posted online for a two week review period beginning April 25, 2011. No comments were received. This EA was made available for public review and comment for 30 days beginning May 26, 2011. No comments were received.

Administrative Review and Appeal:

This Decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR 4.400 and Form 1842-1, Information on Taking Appeals to the Interior Board of Land Appeals. If an appeal is taken, a Notice of Appeal must be filed in this office at the aforementioned address within 30 days from receipt of this Decision. A copy of the Notice of Appeal and of any statement of reasons, written arguments, or briefs must also be served on the Office of the Solicitor at the address shown on Form 1842-1. It is also requested that a copy of any statement of reasons, written arguments, or briefs be sent to this office. The appellant has the burden of showing that the Decision appealed from is in error.

If you wish to file a Petition for a Stay of this Decision, pursuant to 43 CFR 4.21, the Petition must accompany your Notice of Appeal. A Petition for a Stay is required to show sufficient justification based on the standards listed below. Copies of the Notice of Appeal and Petition for a Stay **must** also be submitted to each party named in the Decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a Decision pending appeal shall show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied;

(2) The likelihood of the appellant's success on the merits;

(3) The likelihood of immediate and irreparable harm if the stay is not granted; and

(4) Whether the public interest favors granting the stay.

Prepared by:

/s/ Cody Layton Date 10/14/11
Cody Layton, Natural Resource Specialist

Reviewed By:

/s/ Jim Stovall Date 10/14/11
James Stovall, Field Manager

Approved by:

/s/ William Merhege Date 10/28/11
For Jesse J. Juen, Acting State Director

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Project: October 2011 Competitive Oil and Gas Lease Sale
EA Log Number: DOI-BLM-NM-P020-2011-0867-EA
Location: Various Locations in Eddy and Lea County, New Mexico.

Finding of No Significant Impact

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined the Preferred Alternative is not expected to have significant impacts on the environment. The impacts of offering fluid minerals leases in the areas described with this EA have been previously analyzed in the Carlsbad Resource Area Resource Management Plan (RMP) and Final Environmental Impact Statement (BLM February 1986) and the Carlsbad Resource Area Resource Management Plan Amendment (RMPA) and Final Environmental Impact Statement for Oil and Gas Resources (BLM January 1997), which were approved as the Final RMP and RMPA for the BLM-CFO by the Record of Decisions (ROD), signed September 30, 1988 and October 10, 1997, respectively. The Special Status Species RMPA Record of Decision was signed on May 2, 2008, and amends the RMP and 1997 RMPA in portions of Chaves, Eddy, Lea and Roosevelt Counties, New Mexico, with reference to Planning Areas as described in that document; and the lease stipulations that accompany the tracts offered for lease would mitigate the impacts of future development on these tracts. Therefore, preparation of an Environmental Impact Statement is not warranted.

Prepared by:

/s/ Cody Layton Date 10/14/2011
Cody Layton, Natural Resource Specialist

Reviewed by:

/s/ Jim Stovall Date 10/14/2011
Jim Stovall, Field Office Manager

Approved by:

/s/ William Merhege Date 10/14/2011
for Jesse J. Juen, Acting State Director

ENVIRONMENTAL ASSESSMENT FOR
OCTOBER 2011 COMPETITIVE OIL AND GAS LEASE SALE
DOI-BLM-NM-P020-2011-0867-EA

INTRODUCTION

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

The BLM New Mexico State Office (NMSO) conducts a quarterly competitive lease sale to offer available oil and gas lease parcels in New Mexico, Oklahoma, Texas, and Kansas. A Notice of Competitive Lease Sale (NCLS), which lists lease parcels to be offered at the auction, is published by the BLM NMSO 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 are necessary, based on information available at the time, is made during the land use planning process. Surface management of non-BLM administered land overlaying federal minerals is determined by the BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale the BLM NMSO sends a draft parcel list to any Field Offices in which parcels are located. Field office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing; if new information has become available which might change any analysis conducted during the planning process; if appropriate consultations have been conducted; what appropriate stipulations should be included; and if there are special resource conditions of which potential bidders should be made aware. The parcels nominated for this sale, along with the appropriate stipulations from the 1988 Carlsbad Resource Management Plan (RMP) and subsequent amendments, were posted online for a two week public scoping period. No comments were received.

Once the draft parcel review is completed and returned to the NMSO, a list of nominated lease parcels with specific, applicable stipulations is made available through a NCLS. On rare occasions, additional information obtained after the publication of the NCLS may result in deferral of certain parcels prior to the lease sale. This EA documents the Carlsbad Field Office (CFO) review of the 23 parcels nominated for the October 2011 Competitive Oil and Gas Lease Sale that are under the administration of the CFO. It serves to verify conformance with the approved land use plan, provides the rationale for deferring or dropping parcels from a lease sale, as well as providing rationale for attaching lease stipulations to specific parcels.

This EA is made available for public review and comment for 30 days, and comments provided prior to the lease sale will be considered and incorporated below as appropriate.

1.0 Purpose and Need

The purpose is to consider opportunities for private individuals or companies to explore for and develop oil and gas resources on public lands through a competitive leasing process.

The need of the action is established by the BLM's responsibility under the MLA, as amended, to promote the development of oil and gas on the public domain. The MLA also establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with the FLPMA, the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-90, 42 USC 4321 iet seq.*)*, and other applicable laws, regulations, and policies.

The BLM will decide whether or not to lease the nominated parcels and, if so, under what terms and conditions.

1.1 Conformance with Applicable Land Use Plan and Other Environmental Assessments

The applicable land use plan for this action is the 1988 Carlsbad RMP and Final Environmental Impact Statement (BLM February 1986) and the Carlsbad Resource Management Plan Amendment (RMPA) and Final Environmental Impact Statement for Oil and Gas Resources (BLM January 1997), which were approved as the Final RMP and RMPA for the BLM-CFO by the Record of Decisions (ROD), signed September 30, 1988 and October 10, 1997, respectively. The Special Status Species RMPA Record of Decision was signed on May 2, 2008, and amends the RMP and 1997 RMPA. The RMP designated approximately 4.1 million acres of federal minerals open for continued oil and gas development and leasing under Standard Terms and Conditions. The RMP and RMPAs also describe specific stipulations that would be attached to new leases offered in certain areas. Therefore, it is determined that the action alternatives conform to fluid mineral leasing decisions in the RMP and subsequent amendments and are consistent with the goals and objectives for natural and cultural resources.

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this EA is tiered to and incorporates by reference the information and analysis contained in the RMP and RMPAs and their Final Environmental Impact Statements. While it is unknown precisely when, where, or to what extent well sites or roads would be proposed, the analysis of projected surface disturbance impacts, should a lease be developed, is based on well spacing requirements at each parcel location. While an appropriate level of site-specific analysis of individual wells or roads would occur when a lease holder submits an Application for Permit to Drill (APD), assumptions based on the full lease development will be used in the analysis of impacts in this EA.

FLPMA established guidelines to provide for the management, protection, development, and enhancement of public lands (Public Law 94-579). Section 103(e) of FLPMA defines public lands as any lands and interest in lands owned by the U.S. For split-estate lands where the mineral estate is an interest owned by the U.S., the BLM has no authority over use of the surface by the surface owner; however, the BLM is required to declare how the federal mineral estate will be managed in the RMP, including identification of all appropriate lease stipulations. (43 CFR 3101.1 and 43 CFR 1601.0-7(b); BLM Manual Handbook 1601.09 and 1624-1).

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

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

In preparation for the 1997 RMPA, the U.S. Fish and Wildlife Service (USFWS) concurred with CFO biologists with a determination of no effect or not likely to adversely affect threatened or endangered species. The USFWS response is found in Appendix 4 of the ROD for the 1997 RMPA, dated 30 April 1997. No further consultation with the USFWS is needed at this stage for any of the proposed parcels.

In April 2008, the BLM Pecos District Special Status Species RMPA amended the Carlsbad RMP in portions of the CFO with references to the Planning Area, as described in that document, to ensure continued habitat protection of two special status species, the lesser prairie-chicken (*Tympanuchus pallidicinctus*) (LPC) and the sand dune lizard (*Sceloporus arenicolus*) (SDL). This action is in compliance with threatened and endangered species management outlined in the September 2006 (Cons. #22420-2007-TA-0033) Biological Assessments and in accordance with the requirements of FLMPAand NEPA.

The professional opinion of BLM biologists, using BLM inventory and monitoring data, is that no federally listed threatened, endangered, or proposed species would be adversely affected by sale of the lease parcels. Effects of oil and gas leasing and development on threatened or endangered species were analyzed in Section 7 consultation (Cons. # 2-22-96-F-128 and Cons. #22420-2007-TA-0033). No new information has been uncovered which would change that analysis. Additional review and analysis would occur when site specific proposals for development are received.

Federal regulations and policies require the BLM to make its public land and resources available on the basis of the principle of multiple-use. At the same time, it is BLM policy to conserve special status species and their habitats, and to ensure that actions authorized by the BLM do not contribute to the need for the species to become listed as threatened or endangered by the USFWS.

Compliance with Section 106 responsibilities of the NHPA are adhered to by following the Protocol Agreement between New Mexico BLM and New Mexico State Historic Preservation Officer (Protocol Agreement), which is authorized by the National Programmatic Agreement between BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, and other applicable BLM handbooks. When draft parcel locations are received by the CFO, cultural resource staff reviews the locations to determine if any are within known areas of concern.

Native American consultation is conducted by certified mail regarding each lease sale activity. If Traditional Cultural Properties (TCP) or heritage-related issues are identified, such parcels are withheld from the sale while letters requesting information, comments, or concerns are sent to the Native American representative. If the same draft parcels appear in a future sale, a second

request for information is sent to the same recipients and the parcels will be held back again. If no response to the second letter is received, the parcels are allowed to be offered in the next sale.

If responses are received, BLM cultural resources staff will discuss the information or issues of concern with the Native American representative to determine if all or portions of a parcel need to be withdrawn from the sale, or if special stipulations need to be attached as lease stipulations. Native American consultation letters for the October 2011 Lease Sale were sent on 05 May 2011. To date, no responses have been received from the tribes.

In Section 1835 of the Energy Policy Act of 2005 (43 U.S.C. 15801), Congress directed the Secretary of the Interior to review current policies and practices with respect to management of federal subsurface oil and gas development activities and their effects on the privately owned surface. The Split Estate Report, submitted in December 2006, documents the findings from consultation on the split estate issue with affected private surface owners, the oil and gas industry, and other interested parties.

In 2007, the Legislature of the State of New Mexico passed the Surface Owners Protection Act. This Act requires operators to provide the surface owner at least five business days notice prior to initial entry upon the land for activities that do not disturb the surface; and provide at least 30 days notice prior to conducting actual oil and gas operations. At the New Mexico Federal Competitive Oil and Gas Lease Sale conducted on October 17, 2007, the BLM announced the implementation of this policy. Included in this policy is the implementation of a Notice to Lessees (NTL), a requirement of lessees and operators of onshore federal oil and gas leases within the State of New Mexico to provide the BLM with the names and addresses of the surface owners of those lands where the Federal Government is not the surface owner, not including lands where another federal agency manages the surface.

The BLM NMSO office would then contact the surface owners and notify them of the expression of interest and the date the oil and gas rights would be offered for competitive bidding. The BLM would provide the surface owners with its website address so they may obtain additional information related to the oil and gas leasing process, the imposition of any special stipulations on that lease parcel, federal and state regulations, and best management practices (BMPs). The surface owners may elect to protest the leasing of the minerals underlying their surface.

If the BLM receives a protest, the parcel would remain on the lease sale; however, the BLM would resolve any protest prior to issuing an oil and gas lease for that parcel. If the protest is upheld, the BLM would return the payments received from the successful bidder for that parcel. After the lease sale has occurred, the BLM would post the results on its website and the surface owner may access the website to learn the results of the lease sale.

1.3 Identification of Issues

The October 2011 parcel list was received by the CFO on 18 March 2011. The parcel list was posted at *http://www.blm.gov/nm/st/en/prog/energy/oil_and_gas/lease_sale_notices.html* on the New Mexico State Office Website for 2 weeks 25 April 2011 through 09 May 2011.
The CFO Interdisciplinary Team (IDT) reviewed the parcels for approximately two weeks. The IDT met on 18 April 2011 and removed parcels that were not in conformance with the RMP and

attached lease stipulations to the remaining parcels that were in conformance with the RMP. The New Mexico Department of Game and Fish is invited to attend all IDT Lease Sale Reviews at the CFO. The United States Forest Service local Guadalupe Ranger District was invited and was represented at the October internal review meeting. The CFO met with the State Office on 06 May 2011 to discuss proposed parcels and to provide rationale for attaching stipulations or for deferring parcels. For example, parcels -003, -004, -005, -020, -022, and -024 are recommended for deferral until the Permian Basin Candidate Habitat State Land Exchange has been completed.

Based on these efforts, the following issues have been determined relevant to the analysis of this action:

- *What effect will the proposed action have on Air Quality of Southeastern New Mexico?*
- *What effect will the proposed action have on Global Climate Change?*
- *What effect will the proposed action have on Wetlands and Riparian areas?*
- *What effect will the proposed action have on vegetation and forage for grazing and wildlife?*
- *What effect will the proposed action have on spreading of Noxious Weeds?*
- *What effect will the proposed action have on Raptors or their nests?*
- *What effect will the proposed action have on recreational opportunities?*
- *What effect will the proposed action have on Environmental Justice?*
- *What effect will the proposed action have on significant Cave and Karst Resources?*
- *What effect will the proposed action have on the scenic quality of the areas?*
- *What effect will the proposed action have on known heritage resources eligible for listing on the National Register of Historic Places?*
- *What effect will the proposed action have on slopes or fragile soils?*
- *What effect will the proposed action have on the water resources?*
- *What effect will the proposed action have on Lesser Prairie Chickens and their habitat?*
- *What effect will the proposed action have on Sand Dune Lizards and their habitat?*
- *Are any of the parcels located on lands that have wilderness characteristics?*
- *Are any parcels located in areas that are closed to leasing?*
- *Are any parcels located in areas that have been identified as available for exchange with the State of New Mexico?*
- *Are any of the parcels located on lands nominated for special designation such as ACEC?*

The following elements are not present as determined by the IDT of resource specialists: Areas of Critical Environmental Concern, Prime or Unique Farmlands, Wild and Scenic Rivers, Wilderness or Wilderness Study Areas, and Wild Horses and Burros.

PROPOSED ACTIONS AND ALTERNATIVES

2.0 Alternatives Including the Proposed Action

2.1 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 denied or rejected, and the 23 parcels totaling 11,082.26 acres would not be offered for lease during the October 2011 Competitive Oil and Gas Lease Sale. Surface management and any ongoing oil and gas development on surrounding federal, private, and state leases would continue under current guidelines and practices. The no action alternative would not preclude these parcels from being nominated and considered in a future lease sale.

2.2 Alternative B – Proposed Action

The Proposed Action is to lease the seventeen (17) parcels of federal minerals nominated by the public that are in conformance with the RMP and Amendments, covering approximately 8,973.97 acres administered by the CFO, for oil and gas exploration and development. Standard terms and conditions as well as stipulations listed in the RMP and RMPAs would apply. Complete descriptions of these parcels, including stipulations, are provided in Appendix 1.

All seventeen (17) parcels contain a special Cultural Resources Lease Notice stating that all development activities proposed under the authority of these leases are subject to compliances with Section 106 of the NHPA and Executive Order (EO) 13007.

Once sold, the lease purchaser would have the right to use as much of the leased lands as would be necessary to explore and drill for oil and gas within the lease boundaries, subject to: Stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed (43 CFR 3101). Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lease holder fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, ownership of the minerals leased revert back to the federal government and the lease can be resold.

Drilling of wells on a lease would not be permitted until the lease owner or operator meets the site specific requirements specified in 43 CFR 3162.

In addition to the above, the following would apply to the proposed action:

Lease Stipulation SENM-S-39 Plan of Development

Applying stipulation SENM-S-39 provides an opportunity for up front planning that helps in the orderly development of the lease. This stipulation would be applied to parcels -001, -002, and -007.

Southern Guadalupe Escarpment Resources SENM-S-42
Within the Southern Guadalupe Escarpment resource area there are numerous resources that are afforded protections by the use of this stipulation. The stipulation is for the purpose of protecting karst resources, ground water/ hydrology, springs, riparian areas, wildlife, fragile soils, visual resources, and to facilitate resource reclamation.

Parcel -007 contains a lease stipulation for the Southern Guadalupe Escarpment Resources.

Lease Stipulation SENM-S-47
Various lands within the CFO have been developed during historic oil and gas activity. Many of these properties contain wells that were not plugged, well pads or roads and/or facilities that were abandoned and not removed or reclaimed to current standards. Some of these areas no longer have a responsible party to reclaim these lands. These lands need to be reclaimed to help stabilize soils, improve vegetative communities, reduce impacts to watersheds, and to improve or defragment wildlife habitat. In some cases the erosion potential of these lands have increased by not having these lands reclaimed.

Lease Stipulation SENM-S-47 Lease Reclamation was developed by the Pecos District to mitigate existing impacts by requiring the potential lessee to either put the existing facilities or surface disturbance to a beneficial and direct use or to reclaim the facilities within two years of lease issuance.

Parcel -009 contains approximately ten (10) acres of previous disturbance (4 well pads including the old reserve pits and the associated access roads) that need to be reclaimed or to be put to beneficial use.

Areas that have not been reclaimed to current standards affect all resources.

The following table describes lease parcels that are in conformance with the applicable land use plan and amendments.

Alternative B – Proposed Action

Parcel	Comments	Acres
NM-201110-001 T.0230S, R.0230E, NM PM, NM Sec. 004 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	640.000

NM-201110-002 T.0230S, R.0230E, NM PM, NM Sec. 019 LOTS 4; 019 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	122.800
NM-201110-003 T.0180S, R.0240E, NM PM, NM Sec. 033 NWNW,S2NW,S2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-16 Raptor Nests and Heronries SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-31 Northern Aplomado Falcon	440.000
NM-201110-004 T.0190S, R.0240E, NM PM, NM Sec. 031 LOTS 1-4; 031 E2,E2W2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-19 Playas and Alkali Lakes Playa SENM-S-21 Caves and Karst SENM-S-31 Northern Aplomado Falcon	637.600
NM-201110-005 T.0190S, R.0240E, NM PM, NM Sec. 033 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-19 Playas and Alkali Lakes Playa SENM-S-21 Caves and Karst SENM-S-31 Northern Aplomado Falcon	640.000
NM-201110-007 T.0250S, R.0250E, NM PM, NM Sec. 030 LOTS 3-4; 030 E2,SENW,E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-17 Slopes or Fragile Soils Fragile soils - Gypsum SENM-S-20 Springs, Seeps and Tanks SENM-S-21 Caves and Karst SENM-S-25 Visual Resource Management SENM-S-32 VRM-Class III Guadalupe Escarpment SENM-S-39 Plan of Development SENM-S-42 Southern Guadalupe Escarpment Resources	517.280

NM-201110-009 T.0160S, R.0300E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW,SE; 031 N2NE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-16 Raptor Nests and Heronries SENM-S-19 Playas and Alkali Lakes Playa SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	393.150
NM-201110-013 T.0230S, R.0330E, NM PM, NM Sec. 006 LOTS 1-7; 006 S2NE,SENW,E2SW,SE; 007 LOTS 1-4; 007 NE,E2W2,S2SE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	1179.440
NM-201110-015 T.0230S, R.0340E, NM PM, NM Sec. 001 LOTS 1-4; 001 S2N2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	320.440
NM-201110-017 T.0250S, R.0360E, NM PM, NM Sec. 004 LOTS 3,4; 004 S2NW,S2; 005 LOTS 1-4; 005 S2N2,S2; 006 LOTS 7; 006 E2SW,SE; 007 LOTS 1,2; 007 NE,E2NW,N2SE; 009 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-20 Springs, Seeps and Tanks Earthen reservoir SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	2443.450
NM-201110-018 T.0250S, R.0360E, NM PM, NM Sec. 007 LOTS 3,4; 007 E2SW; 018 LOTS 1,2; 018 E2NW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	319.640

NM-201110-019 T.0250S, R.0360E, NM PM, NM Sec. 019 E2; 020 NWNW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens Windmill	360.000
NM-201110-020 T.0250S, R.0360E, NM PM, NM Sec. 028 SE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	160.000
NM-201110-021 T.0250S, R.0360E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.170
NM-201110-022 T.0250S, R.0360E, NM PM, NM Sec. 033 S2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens Windmill	320.000
NM-201110-023 T.0260S, R.0360E, NM PM, NM Sec. 013 W2E2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.000
NM-201110-024 T.0260S, R.0360E, NM PM, NM Sec. 024 W2W2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens	160.000

2.3 Alternative C – Preferred Alternative

The Preferred Alternative is to lease nine (9) nominated parcels of federal minerals with lease stipulations and notices. The nine (9) nominated parcels total 4,919.65 acres. The Preferred Alternative is in conformance with the 1988 Carlsbad RMP and Amendments.

The Preferred Alternative was developed during an internal review conducted by the CFO interdisciplinary staff on 18 April 2011, and also a State Director Review with NMSO-BLM held

on 06 May 2011 to discuss proposed parcels and to provide rationale for attaching stipulations to parcels, modifying parcels or for deferring parcels.

The BLM would defer eight (8) nominated parcels of federal minerals, covering 4,054.32 acres administered by the CFO. Below is the rationale for deferring these (8) parcels:

> Parcel -007 is located within in an area nominated as a potential Area of Critical Environmental Concern (ACEC). We are deferring the parcel until we complete the relevance and importance criteria for this nominated area.
>
> Parcel -013 is located along the outer boundary of a Habitat Evaluation Area (HEA). This parcel is being deferred in order to determine whether the habitat will be included within the existing HEA. If it is determined to have the necessary habitat type present the added acreage will be included with the HEA and be considered as part of the evaluation process to be converted and managed as a viable habitat area (HA). Criteria for managing land within the 17 HEAs was designed in the 2008 SSS-RMPA, but can be used in areas that have suitable habitat along with successful reclamation. We are deferring the parcel until this process can be evaluated and completed.
>
> Parcels -003, -004, -005, -020, -022 and -024 are being deferred from leasing for the Permian Basin Candidate Habitat Exchange with the State of New Mexico. The parcels being deferred have been identified by the State to increase revenues from oil and gas development for the State of New Mexico. The lands the BLM will receive from the State are located in lesser prairie chicken habitat and will consolidate federal lands thereby increasing federal protection of lesser prarie chicken habitat. Leasing of these parcels would preclude them from the future exchange and limit the BLM's ability to negotiate for benefitial exchange property.

Parcel numbers, locations, stipulations, and acreages for the nine (9) parcels are listed in the table below. Standard terms and conditions as well as stipulations would apply. Lease stipulations (as required by Title 43 CFR 3131.3) would be added to the nine (9) parcels to address site specific concerns.

Once sold, the lease purchaser would have the right to use as much of the leased lands as would be necessary to explore and drill for all of the oil and gas within the lease boundaries, subject to: Stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed (43 CFR 3101).

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

Drilling of wells on a lease is not permitted until the lease owner or operator secures approval of a drilling permit and a surface use plan specified under Onshore Oil and Gas Orders listed in Title 43 CFR 3162. A permit to drill would not be authorized until site-specific NEPA analysis is conducted.

The nine (9) parcels contain a special Cultural Resources Lease Notice stating that all development activities proposed under the authority of these leases are subject to compliance with Section 106 of the NHPA and Executive Order (EO) 13007. Standard terms and conditions, special stipulations listed in the RMP, and any new stipulations would apply as appropriate to each lease. In addition, site specific mitigation measures and BMPs would be attached as Conditions of Approval (COAs) for each proposed exploration and development activity authorized on a lease.

Lease stipulations SENM-S-39 Plan of Development, SENM-S-42 Southern Guadalupe Escarpment Scenic Area, and SENM-S-47 Lease Reclamation as described in the Proposed Action, Section 2.2, apply.

The nine (9) parcels recommended for leasing under the Preferred Alternative with stipulations are presented in the tables below:

Alternative C: Preferred Alternative Parcels

Parcel	Comments	Acres
NM-201110-001 T.0230S, R.0230E, NM PM, NM Sec. 004 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	640.000
NM-201110-002 T.0230S, R.0230E, NM PM, NM Sec. 019 LOTS 4; 019 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	122.800
NM-201110-009 T.0160S, R.0300E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW,SE; 031 N2NE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-16 Raptor Nests and Heronries SENM-S-19 Playas and Alkali Lakes Playa SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	393.150
NM-201110-015 T.0230S, R.0340E, NM PM, NM Sec. 001 LOTS 1-4; 001 S2N2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	320.440

NM-201110-017 T.0250S, R.0360E, NM PM, NM Sec. 004 LOTS 3,4; 004 S2NW,S2; 005 LOTS 1-4; 005 S2N2,S2; 006 LOTS 7; 006 E2SW,SE; 007 LOTS 1,2; 007 NE,E2NW,N2SE; 009 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-20 Springs, Seeps and Tanks Earthen reservoir SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	2443.450
NM-201110-018 T.0250S, R.0360E, NM PM, NM Sec. 007 LOTS 3,4; 007 E2SW; 018 LOTS 1,2; 018 E2NW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	319.640
NM-201110-019 T.0250S, R.0360E, NM PM, NM Sec. 019 E2; 020 NWNW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens Windmill	360.000
NM-201110-021 T.0250S, R.0360E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.170
NM-201110-023 T.0260S, R.0360E, NM PM, NM Sec. 013 W2E2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.000

Standard terms and conditions as well as new stipulations developed through the parcel review and analysis process would apply as additional lease stipulations (as required by Title 43 CFR 3131.3) to address site specific concerns or new information not identified in the land use planning process.

2.4 Alternatives Eliminated from Detailed Analysis

The alternatives considered but eliminated from detailed analysis identify those parcels that are not in conformance with the current land use plans. Therefore this alternative will not be carried through the remainder of this environmental assessment. The table below identifies those nominated parcels that are not in conformance with current land use plans, and also describes why these parcels were not carried forward into either the proposed action alternative or the preferred alternative. In many cases, the reason for deferral is associated with the ongoing evaluation of the HEAs and therefore, leasing is inconsistent with the Special Status Species RMPA, which states that leasing must be deferred until determination of a Habitat Area.

NM-201110-006 T.0220S, R.0240E, NM PM, NM Sec. 025 W2,W2SE;	Reason Parcel is Deferred: McKittrick Hills Special Management Area (SMA) -Closed to Future Leasing	400.000
NM-201110-010 T.0180S, R.0320E, NM PM, NM Sec. 006 LOTS 1; 006 SENE;	Reason Parcel is Deferred: The parcel contains suitable sand dune lizard (SDL) habitat. According to the 2008 Special Status Species RMPA, nominated leases within the SDL Habitat Boundary will be evaluated by the BLM for SDL habitat.	80.050
NM-201110-011 T.0180S, R.0320E, NM PM, NM Sec. 026 SE;	Reason Parcel is Deferred: Defer parcel due to QP-C – Habitat Evaluation Area (HEA). CFO is currently in the process of reviewing the HEA to see if it will be converted into a Habitat Area (HA). If the HEA is determined to have the necessary habitat type present the HEA will be considered as part of the evaluation process to be converted and managed as an HA. This is consistent with the Special Status Species 2008 RMPA.	160.000
NM-201110-012 T.0180S, R.0320E, NM PM, NM Sec. 035 SWSW;	Reason Parcel is Deferred: Defer parcel due to QP-C – Habitat Evaluation Area (HEA). CFO is currently in the process of reviewing the HEA to see if it will be converted into a Habitat Area (HA). If the HEA is determined to have the necessary habitat type present the HEA will be considered as part of the evaluation process to be converted and managed as an HA. This is consistent with the Special Status Species 2008 RMPA.	40.000

NM-201110-014 T.0190S, R.0340E, NM PM, NM Sec. 014 SE;	Reason Parcel is Deferred: Parcel is located within the Pearl – HEA. Need to defer the parcel until the Habitat evaluation area can be completed.	160.000
NM-201110-016 T.0230S, R.0360E, NM PM, NM Sec. 019 LOTS 1-4; 019 E2;E2W2; 030 LOTS 1-4; 030 E2,E2W2;	Reason Parcel is Deferred: Defer parcel due to San Simon – Habitat Evaluation Area (HEA). CFO is currently in the process of reviewing the HEA to see if it will be converted into a Habitat Area (HA). If the HEA is determined to have the necessary habitat type present the HEA will be considered as part of the evaluation process to be converted and managed as an HA. This is consistent with the Special Status Species 2008 RMPA.	1268.240

AFFECTED ENVIRONMENT

3.0 Introduction

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Elements of the affected environment described in this section focus on the relevant resources and issues. Only those elements of the affected environment that have the potential to be significantly impacted are described in detail.

3.1. Air Quality

The state of New Mexico has divided the state into 12 air quality regions. The Carlsbad Field Office planning area lies in region 155 (New Mexico Environment Department--Air Quality Bureau, 2010). The Pecos-Permian Basin Intrastate Air Quality Control Region 155 (AQCR 155) is composed of Quay, Curry, De Baca, Roosevelt, Chaves, Lea, and Eddy Counties. Generally, it includes the areas known as the Southern High Plains and the Middle Pecos River drainage basin (New Mexico Environment Department--Air Quality Bureau, 2010).

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM10 & PM2.5), sulfur dioxide (SO_2) and lead (Pb). Regulation of air quality is delegated to the State of New Mexico. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and includes applications of noise, smoke management, and visibility.

The area of the analysis is considered a Class III air quality area by the EPA. This class is assigned to attainment areas to allow maximum industrial growth while maintaining compliance

with NAAQS. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil, exhaust emissions from motorized equipment, oil and gas development, agriculture, and industrial sources.

Air quality in a given region can be measured by its Air Quality Index value. The air quality index (AQI) is reported according to a 500-point scale for each of the major criteria air pollutants, with the worst denominator determining the ranking. For example, if an area has a CO value of 132 on a given day and all other pollutants are below 50, the AQI for that day would be 132. The AQI scale breaks down into six categories: good (AQI<50), moderate (50-100), unhealthy for sensitive groups (100-150), unhealthy (>150), very unhealthy and hazardous. The AQI is a national index, the air quality rating and the associated level of health concern is the same everywhere in the country. The AQI is an important indicator for populations sensitive to air quality changes.

Current Pollution levels

Information on some pollutants is limited. Carlsbad is in the process of developing an air pollution inventory and model for the office. More detailed information on current conditions will become available in the future.

AQCR 155 is classified as an attainment area for all criteria pollutants, indicating that the area satisfies all NAAQS and NMAAQS. Data for lead and carbon monoxide is not available in the area; however these pollutants are not expected to be issues in rural areas and are therefore not monitored.

The 2008 levels of criteria pollutants are listed below.

Figure 1 Mean annual levels of Criteria pollutants in Lea, Chavez, and Eddy counties in 2008 (EPA, 2009)

2008 pollutant levels									
County	Monitoring Site ID	City	4th Max (8-Hour Ozone)	2nd Max (24-hour SO2)	Mean (Annual SO2)	98th Pct (24-Hour PM2.5)	Annual Mean (PM2.5)	2nd Max (24-Hour PM10)	Annual Mean (PM10)
Chavez	350050005	Roswell				14.8	6.48	59	19
Lea	350250008	Hobbs	0.067			14.6	6.85	39	18
Eddy	350151004	Artesia		0.001	0.001				
Eddy	350151005	Carlsbad	0.067						
Eddy	350153001	Carlsbad Caverns NP	0.071						

EPA Air Quality Standards:

Nitrogen Dioxide: 0.053 ppm (annual mean)
Ozone: 0.12 ppm (1-hour average), 0.075 ppm (8-hour average)
Sulfur Dioxide: 0.14 ppm (24-hour average), 0.030 ppm (annual mean)

Particles < 2.5 micrometers diameter: 35 µg/m3 (24-Hour Average), 15.0 µg/m3 (annual mean)
Particles < 10 micrometers diameter: 150 µg/m3 (24-hour average), 50 µg/m3 (annual mean)

Eddy County exceeded the 8 hour ozone standard once in 2002 and once in 2006 with levels of .076ppm (NAAQS .075ppm) (EPA, 2009). However it did not violate the three year moving average. No other violations of air quality standards occurred and these violations have not been repeated. Ozone is the criteria contaminant of most concern in the planning area. Although no trends in the data were observed, ozone levels are close to the regulatory limit (EPA, 2009).

Mean AQI values for the CFO region are generally in the good range (AQI<50) (**Figure 2**).

Figure 2 Mean and Max AQI Values (EPA, 2009)

2008 AQI Values		
	Mean AQI	Max AQI
Chavez	19	79
Eddy	44	100
Lea	42	80

Although the AQI in the region has reached the level considered unhealthy for sensitive groups several times in the last decade, there are no patterns or trends to the occurrences (Figure 3). In all years not listed below, the AQI never exceeded the threshold (EPA, 2009).

Figure 3 # Days was unhealthy for sensitive groups (AQI 101-150) (EPA, 2009)

	2002	2003	2005	2006	2009
Lea		1*	3	3	3
Eddy	4	1		6	
Chavez		1			

*this day was indicated as unhealthy for all groups (AQI>150)

3.2 Climate

The planning area is located in a semiarid portion of the Chihuahua Desert, typified by dry windy conditions and limited rainfall (Trewartha and Horn 1980). Components of climate that could affect air quality in the region are summarized below.

Climate Component	**Temperature**
Mean maximum summer temperatures	95°F
Mean minimum winter temperatures	30.9°F
Mean annual temperature	63.2°F
Mean annual precipitation	12.2 inches
Mean annual snowfall	6.4 inches
Mean annual wind speed	9.3 mile per hour (mph)
Prevailing wind direction	South

In addition to the air quality information in the RMP, new information about greenhouse gases (GHGs) and their effects on national and global climate conditions has emerged since the RMP was prepared. Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring and modeling systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions; what is known is that increasing concentrations of GHGs are likely to accelerate the rate of climate change.

Greenhouse gases that are included in the US Greenhouse Gas Inventory are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). CO_2 and methane (CH_4) are typically emitted from combustion activities or are directly emitted into the atmosphere. On-going scientific research has identified the potential impacts of greenhouse gas emissions (including CO_2; CH_4; nitrous oxide (N_2O), water vapor; and several trace gasses) on global climate. Through complex interactions on regional and global scales, these greenhouse gas emissions cause a net warming effect of the atmosphere (which making makes surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although greenhouse gas levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO_2 concentrations to increase dramatically, and are likely to contribute to overall climatic changes, typically referred to as global warming. Increasing CO_2 concentrations also lead to preferential fertilization and growth of specific plant species.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. It is not, however, possible at this time to predict with any certainty the causal connection of site specific emissions from sources to impacts on the global/regional climate relative to the Preferred Alternative and subsequent actions of oil and gas development.

Mean annual temperatures have risen across New Mexico and the southwestern U.S. since the early 20th century. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state. Recurrent research has indicated that predicting the future effects of climate change and subsequent challenges of managing resources in the Southwest is not feasible at this time (USFS, 2008). However, it has been noted that forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a ten year period. Should the trend continue, the habitats and

identified drought sensitive species in these forested areas and higher elevations may also be affected by climate change (Enquist and Gori).

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales due to their differences in global warming potential (described above) and lifespans in the atmosphere.

3.3 Heritage Resources

3.3.1 Cultural Resources

The project area identified in this environmental document is located in southeastern New Mexico. Geographically, the area is bounded on the west by the eastern flanks of the Guadalupe Mountains, on the east by the Llano Estacado or 'Staked Plain', and is bisected by the Southern Pecos River Valley and Mescalero Plains. Four archaeological regions (the Sacramento Section, Pecos Valley, Mescalero Plains, and Llano Estacado archaeological regions) characterize the cultural resources located within the project area. Parcels -009, -013, -015, -017, -018, -019, -020, -021, -022, -023, and -024 are located in the Mescalero Plains archaeological region. Parcels -003 and -007 are located in the Pecos Valley archaeological region. Parcels -001, -002, -004, and -005 are located in the Sacramento Section archaeological region.

Archaeological sites in Southeastern New Mexico are the reflection of human adaptations to changing environmental conditions. As the environmental conditions changed, the distribution and availability of food (plant and animal) also changed. Archaeological sites often reflect these adaptations in their technology (artifact assemblages), geographical location, and the duration of occupation. Rough chronological sequences have been created that reflect these cultural adaptations, allowing archaeologists to place a site into a cultural tradition or period. These are the Paleoindian (ca. 12,000-8,000 B.C.), Archaic (ca. 8000 B.C. –A.D. 950), Formative (ca. A.D. 600-1540) Protohistoric (ca. A.D. 1400-1821), and Historic (ca. A.D. 1822 to early 20th century) periods. Sites representing any or all of these periods exist within these archaeological regions (Sebastian & Larralde 1989 and Hogan 2006).

The Permian Basin MOA is an optional method of compliance with Section 106 of the National Historic Preservation Act for energy related projects in a 28-quadrangle area of the Carlsbad Field Office. The MOA is a form of off-site mitigation which allows industry to design projects to avoid known National Register of Historic Places eligible cultural resources, and to contribute to a mitigation fund in lieu of paying for additional archaeological inventory in an area that has received adequate previous survey. Funds received from the Permian Basin MOA will be utilized to conduct archaeological research and outreach in Southeastern New Mexico. Research will include archaeological excavation of significant sites, predictive modeling, targeted research activities, and professional and public presentations on the results of the investigations.

3.3.2 Paleontological Resources

Paleontological resources preserved in marine and terrestrial sediments may be found in rocks formed during the late Paleozoic, Mesozoic, and Cenozoic Ages. Detailed data in southeastern New Mexico concerning Pennsylvanian and Permian Age fossils is available because of intense oil and gas exploration where such data is necessary for stratigraphic correlation (age dating) of producing formations. Such information is lacking in nonproducing areas.

Paleontological remains found in isolated Cenozoic terrestrial sediments are perhaps the best known vertebrate fossils found in the Pecos District. These Pleistocene-Holocene fossils are usually associated with lake deposits, caves, or early man's hunting sites. The extent of known paleontological resources in the area is minimal when compared to the amount of sedimentary rocks which may contain fossil remains.

There are no parcels located in the vicinity of known paleontological resources.

3.4 Water Resources

Surface water within the proposed lease sale area is affected by geology, precipitation, and water erosion. Activities that currently affect surface water resources include livestock grazing management, oil and gas development, recreation, and brush control treatments. Surface water is located in perennial and ephemeral springs, ephemeral playas, and stock tanks. The Pecos River is the only water quality impaired stream presently found within the CFO as per the 2008-2010 State of New Mexico Integrated Clean Water Act 303(d) and 305(b) Report. The designated use listed as not supported is warm water fishery. Listed probable sources of impairment include natural sources (the Malaga salt dome), irrigation, loss of riparian habitat, flow alterations from water diversions, rangeland grazing, and stream bank modifications and destabilization.

Groundwater within the CFO is affected by geology and precipitation. Activities that currently affect groundwater resources include livestock grazing management, oil and gas development, and groundwater pumping. Groundwater within the CFO can be obtained from groundwater aquifers located within the Rustler, Castile, Tansill, Yates, Seven Rivers, Queen, Grayburg, Artesia, Ogallala, and Chinle Formations, the Capitan and San Andres Limestones, the Glorieta and Santa Rosa Sandstones, and the Dockum Group. Most of the groundwater exists in unconfined aquifers, although confined groundwater aquifers exists under artesian conditions in the San Andres Formation. The depth to shallow unconfined groundwater varies from 1 foot to 400 feet throughout the CFO (New Mexico Office of the State Engineer data). The depth to confined groundwater can be greater than 400 feet. Most of the groundwater is used for agricultural, industrial, rural, domestic, and livestock purposes.

Sinks and playas could be located within a proposed lease boundary that may hold water after infrequent heavy rains. Intermittent drainages may also cut across one or more of the proposed lease boundaries.

Playas are located within a portion of parcels -004, -005, and -009.

Spings Seeps and or tanks are located within a portion of parcels -007, and -017.

3.5 Wetlands, Riparian and Floodplains

Most often ephemeral in desert watersheds, floodplains range in width from under one-half mile to over one full mile. In desert watersheds, including the CFO, floodplains may appear to be little more than gentle draws. However, they can quickly become dangerous torrents in periods of monsoonal rainstorms. Regardless, they are important water sources for animals and plants in the Chihuahuan Desert. For administrative purposes, the 100-year floodplain serves as the basis for floodplain management on public lands. The Federal Emergency Management Agency (FEMA) defines the 100-year floodplain. These are in general relatively narrow areas along natural drainage ways that carry large quantities of runoff following periods of high precipitation.

Playas are ephemeral, round hollows in the ground located mainly on the Southern High Plains of the United States. They are important water sources for animals and plants in the Chihuahuan Desert. After rainstorms, freshwater collects in the round depressions of the otherwise flat landscape of West Texas, Oklahoma, New Mexico, Colorado, and Kansas. There are also many saltwater-filled playas in the CFO, known as alkali lakes. These are fed by water from underlying aquifers, which brings salt with it as it percolates up through the soil. As the water evaporates, the salt is left behind in the increasingly salty playas.

Springs and seeps are fed by groundwater from shallow aquifers. Their emergence is a function of hydro-geological, geological, and topographical conditions and interrelation among them. Earthen tanks are drainage catchments normally used for livestock watering; however, in the Chihuahuan Desert, they also offer isolated and limited water for plants, wildlife, and domestic and commercial purposes.

The 100-year floodplain is located within a portion of parcels -001, -002, -003, -004, -005, -017, -018, -020, and -022 .

Playas are located within a portion of parcels -004, -005, and -009.

Spings Seeps and or tanks are located within a portion of parcels -007 and -017.

3.6 Soils

The Carlsbad Resource Management Area can be divided into four general soil types as referenced in the following Soil Surveys: Eddy Area, and Lea County, New Mexico. These are shallow, loamy, sandy, and gypsum.

The shallow type is primarily soils of the Ector and Upton series. Several other minor soil mapping units are found in this type. These soils are shallow to very shallow, well-drained, calcareous, stony and rocky loams over limestone and caliche. Topography ranges from nearly level ridgetops to steep side slopes to cliffs and escarpments. Permeability is moderate, water-holding capacity is very low to low, and runoff is rapid after the soils become saturated. They are subject to water erosion, but the stones and rock outcrops help to stabilize the soils on nearly level to gently sloping areas.

Loamy soils are mainly in the Reagan, Reeves, and Anthony series, while other minor soil mapping units also exist within this type. Generally these soils are deep, well-drained, moderately dark colored, calcareous, and loamy, located on gently undulating plains and in the broader valleys of the hills and mountains. Permeability is moderate, water-holding capacity is moderate to high, and runoff is likely after prolonged or heavy rains.

The sandy type has predominately soils from the Pyote, Kermit, Berino, Pajarito, and Wink series. Other soil mapping units make up a minor part of this type. Typically, these soils are deep, well-drained to excessively drained, non-calcareous to weakly calcareous sands. They are found on undulating plains and low hills in the "sand country" east of the Pecos River. Permeability is moderate to very rapid, water-holding capacity is low to moderate, with little runoff.

Gypsum soils are primarily in the Cottonwood and Gypsum land series. These soils have a loamy surface layer, with gypsiferous materials starting at a depth of 1 to 10 inches. They are found on gently undulating uplands, with steep, broken gypsum outcrops.

Permeability varies from very low to moderate, water-holding capacity is very low to low, and runoff rapid to very rapid. Soil fertility and the rooting zone are limited by the underlying gypsiferous material.

All of the aforementioned soil types are susceptible to wind erosion and careful management is needed to maintain a cover of desirable forage plants and to control erosion. Revegetation is difficult once the native plant cover is lost, due to high temperatures and unpredictable rainfall.

Biological soil crusts are scattered throughout the proposed lease sale area in nutrient-poor areas between plant clumps. These include cyanobacteria, squamulose lichens, and gelatinous lichens. Because they lack a waxy epidermis, they tend to leak nutrients into the surrounding soil. Vascular plants such as grasses and forbs can then utilize these nutrients. They also function in the nutrient cycle by fixing atmospheric nitrogen, contributing to soil organic matter, and maintaining soil moisture. In addition, they can act as living mulch that discourages the establishment of annual or invasive weeds.

Cyanobacteria are the most common in the proposed lease sale area. These soil crusts are important in binding loose soil particles together to stabilize the soil surface and reduce erosion. Cyanobacteria are mobile, and can often move up through disturbed sediments to reach light levels necessary for photosynthesis. Structurally, cyanobacteria form an uneven, rough carpet that reduces raindrop impact and slows surface runoff. Lichens, rhizines, and cyanobacterial filaments act to bind the soil surface particles just below and at the surface. Disturbed crusts, particularly lichens, can take from 10 to as many as 100 years to recover.

Parcels -007, -013, -015, and -024, contain fragile soils or open dunelands.

3.7 Vegetation

In general, the lease parcels are grassland sites with warm season mid and short grasses. There is a fair scattering of shrubs and half-shrubs throughout the landscape, although in some places

shrubs have invaded to the point of dominating the vegetative component. Forb production fluctuates from season to season and year to year.

The majority of shallow soil types are made up of the gravelly, shallow, very shallow, and limestone hills range sites. The potential plant community consists primarily of grasses such as black grama, sideoats grama, hairy grama, muhlys, dropseeds, and tridens, with shrubs such as cresote bush, mesquite, mariola, and catclaw mimosa as well. Yucca, sacahuista, mariola, and catclaw mimosa become more prevalent on north and east slopes. In deteriorated condition, this type of site will show an increase in woody plants and grasses such as three-awns, fluffgrass, and hairy tridens.

Range sites such as loamy, swale, bottomland, and draws make up most of the loamy type. The potential plant community consists of blue grama, black grama, sideoats grama, and tobosa. Fourwing saltbush, tarbush, and yucca are the principal shrubs. Forbs include croton, filaree, globemallow, and desert holly. Invasive species such as three-awns, burrograss, snakeweed, mesquite, creosote, and cholla cactus spread as ecological conditions decrease.

Sandy soil types are dominated by deep sand, sand hills, and sandy range sites. The potential plant community consists of dropseeds (sand, spike, and mesa), bluestems, and black grama. Yucca, fourwing saltbush, and shinnery oak are the principle shrub species. If environmental conditions deteriorate, plants such as three-awns and mesquite will increase and soil hummocking will occur.

Gypsum soil types are dominated by gypsum hills and gypsum flats range sites. The potential plant community located in gypsum consists of gyp grama, gyp dropseed, coldenia, yucca, and ephedra. Black grama, blue grama, alkali sacaton, tobosa, and fourwing saltbush can be found in the loamy pockets included in the gypsum areas. Tarbush, broom snakeweed, and mesquite invade in disturbed areas.

3.8 Noxious Weeds

All field-going CFO personnel continually inventory the presence of species described in the Noxious Weed List for the State of New Mexico (NMDA, 1999). The inventory process is ongoing in order to detect invasive populations when they are small. Once a population is found, the Bureau coordinates with various agencies, lease operators, and the land user to remove or control the population.

Populations of noxious weeds, primarily African rue and Malta star thistle, are scattered throughout the proposed lease sale area. Project activities, even with preventative management actions, could result in the establishment and spread of noxious weeds on disturbed sites throughout portions of the area. Most of the noxious weeds exist mainly along the shoulders of county roads, lease and private roads, and on production pads within the area.

3.9 Special Status Species

Special status species of concern in this area include the lesser prairie-chicken (LPC) and sand dune lizard (SDL), which are considered “candidate species” for listing under the Federal

Endangered Species Act (ESA) by the USFWS.

In addition the mountain plover is considered a "species of concern" by the USFWS. On June 29, 2010 the USFWS reinstated a proposal to list the mountain plover as a threatened species under the Endangered Species Act.

Lesser Prairie-Chicken

Sand shinnery communities extend across the Southern Great Plains, occupying sandy soils in portions of north and west Texas, west Oklahoma, and southeast New Mexico. Portions of Eddy, Lea and Chaves counties consist largely of sand shinnery habitat and are intermixed with areas of mesquite to a lesser degree. The characteristic feature of these communities is co-dominance by shinnery oak and various species of grasses. In New Mexico, shinnery oak inhabits sandy soil areas, often including sand dunes.

In New Mexico, the lesser prairie-chicken formerly occupied a range that encompassed the easternmost one-third of the state, extending to the Pecos River, and 48 kilometers west of the Pecos near Fort Sumner. This covered about 38,000 square kilometers. By the beginning of the 20th century, populations still existed in nine eastern counties (Union, Harding, Chaves, De Baca, Quay, Curry, Roosevelt, Lea, and Eddy). The last reliable records from Union County are from 1993. Currently, populations exist only in parts of Lea, Eddy, Curry, Chaves, and Roosevelt counties, comprising about 23 percent of the historical range.

LPCs are found throughout dry grasslands that contain shinnery oak or sand sagebrush. Currently, they most commonly are found in sandy-soiled, mixed-grass vegetation, sometimes with shortgrass habitats with clayey or loamy soils interspersed. They occasionally are found in farmland and smaller fields, especially in winter. Shinnery oak shoots are used as cover and produce acorns, which are important food for LPCs and many other species of birds, such as the scaled quail, northern bobwhite, and mourning dove. Current geographic range of shinnery oak is nearly congruent with that of the lesser prairie-chicken, and these species sometimes are considered ecological partners. Population densities of LPC are greater in shinnery oak habitat than in sand sagebrush habitat.

LPCs use a breeding system in which males form display groups. These groups perform mating displays on arenas called leks. During mating displays, male vocalizations, called booming, attract females to the lek. Leks are often on knolls, ridges, or other raised areas, but in New Mexico, leks are just as likely to be on flat areas such as roads, abandoned oil drill pads, dry playa lakes, or at the center of wide, shallow depressions. Leks may be completely bare, covered with short grass, or have scattered clumps of grass or short tufts of plants. An important physical requirement for the location of leks is the visibility of surroundings, but the most important consideration is proximity of suitable nesting habitat, breeding females and the ability to hear male vocalizations.

In the late 1980s, there were 35 documented active booming grounds known to exist within the CFO. Due to population decreases and unpredictable weather cycles the LPC is currently a candidate for federal listing, and potentially may become extirpated from Eddy and southern Lea counties.

In June 1998, the USFWS issued a statement regarding their status review of the lesser prairie-chicken. It stated, "Protection of the lesser prairie-chicken under the Federal Endangered Species Act (ESA) is warranted but precluded which means that other species in greater need of protection must take priority in the listing process." Given the current Federal Candidate status of this species, the BLM is mandated to carry out management consistent with the principles of multiple use, for the conservation of candidate species and their habitats, and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered (Bureau Manual 6840.06).

The 2008 BLM Special Status Species Resource Management Plan Amendment identified 17 Habitat Evaluation Areas (HEAs) for the management of lesser prairie-chicken habitat. The purposes of the HEAs are to focus LPC survey efforts, maximize rangeland restoration and historic oil field reclamation, and establish habitat building blocks on which to expand LPC habitat management.

Parcels -009, -013,-015, -017, -018, -019, -020, -021, -022, -023, and, -024 include suitable habitat for lesser prairie-chicken.

<u>Sand Dune Lizard</u>

The sand dune lizard (SDL) is a species with a limited geographic range including parts of Chaves, Eddy, Lea and Roosevelt Counties of southeastern New Mexico and four counties in Texas. The SDL is a habitat specialist, found exclusively in association with shinnery oak dune complexes. These complexes are patchworks of shinnery oak and scattered sand sagebrush interspersed with areas of open sand and wind-created sandy blowouts. These complexes create ideal habitat for the SDL.

The SDL may also require specific sand particle size. Research has shown that there are significant differences in the composition of sand between sites that are occupied and unoccupied by SDLs. Occupied sites have slightly coarser sand than unoccupied sites. This suggests that the SDL may not inhabit areas with high percentages of sand particles smaller than 250 micrometers (Fitzgerald et al, 1997).

The USFWS were petitioned on May 28, 2002 by The Center for Biological Diversity and Chihuahuan Desert Conservation Alliance to list the SDL as an endangered species under the Endangered Species Act. In May 2005 the USFWS issued a statement regarding their status review of the SDL. It stated, "Protection of the sand dune lizard under the Federal Endangered Species Act (ESA) is warranted but precluded, which means that other species in greater need of protection must take priority in the listing process." Given the current Federal Candidate status of this species, the BLM is mandated to carry out management, consistent with the principles of multiple use, for the conservation of candidate species and their habitats and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered (Bureau Manual 6840.06). On December 13, 2010, the USFWS published in the Federal Register a proposal to list the sand dune lizard (Dune Sagebrush Lizard) as federally endangered under the Endangered Species Act of 1973.

3.10 Threatened and Endangered Species

Threatened and Endangered Species

Under Section 7 of the Endangered Species Act (ESA) of 1973 (as amended), the BLM is required to consult with the U.S. Fish and Wildlife Service (FWS) on any proposed action which may affect Federal listed threatened or endangered species or species proposed for listing. A biological assessment was conducted for public lands in 1995 and 1996 in preparation for the 1997 Carlsbad RMPA. The USFWS concurred with the Carlsbad Resource Area with a determination of no effect or not likely to adversely effect T&E species.

The USFWS response is found in Appendix 4 of the Record of Decision for the RMPA. Except for the northern aplomado falcon, no federally listed species are expected to occur in the proposed lease parcels. In 2003, BLM Carlsbad Field Office received concurrence from the FWS on a standard list of conservation measures for oil and gas developments in suitable aplomado falcon habitat. Those measures are discussed under the Environmental Consequences section.

Northern Aplomado Falcon (Falco femoralis septentrionalis)– Experimental Population, Non-Essential

The northern aplomado falcon (falcon) once extended from Trans-Pecos Texas, southern New Mexico and southeastern Arizona in the United States, south through Chiapas and the northern Yucatán along the gulf coast of México, and along the pacific slope of Central America north of Nicaragua (Howell 1972). According to the historical distribution map of 1900 contained in the recovery plan for this species (Northern Aplomado Falcon Recovery Plan, 1990), the falcon once inhabited the southern 1/3 of the CFO, although this species is now very rare in New Mexico. In 2001, 2002 and 2003, falcon nesting was documented south of Deming, NM. Previously, the last documented falcon nest in New Mexico was in 1952. Mainly due to recovery projects such as controlled releases, sightings of birds are increasing in the southwestern U.S. Sightings in New Mexico have increased in recent years, with several observances across the western half of CFO in the last five years (data available on request). Although breeding populations are known to exist less than 200 km from the U.S. border in México, successful release projects in Texas and New Mexico have increased the potential for breeding pairs to occupy nests in the U.S. (Montoya et al., 1997).

The falcon is a long-tailed falcon. The size of the falcon is intermediate between the American kestrel (kestrel) and prairie falcon. The back and dorsal side of the wings are blue-gray with a pronounced white trailing edge across the wing. The upper breast is white to creamy with variable amounts of black streaking, depending on the sex. There is a distinct broad dark or blackish band on the lower breast, which at close range may show faint white barring. The lower abdomen and undertail feathers are rufous (red), the tail striped. Unique to this falcon and useful to field identification is a pronounced white stripe above the eye.

Falcons appear to be year-long residents across most of their northern range where populations currently exist in México. Nesting primarily occurs from March to June in northern Chihuahua, México. Falcons typically use stick nests constructed by other large birds such as Swainson's hawks, white-tailed hawks, red-tailed hawk, Chihuahuan ravens, and possibly white-tailed kites. Nests are usually situated in soap-tree yuccas (Montoya et al. 1997), the tops of mesquite trees, manmade structures, or any other structure tall enough to avoid predation from animals such as coyotes and skunks. As such, nests are typically found at a height greater than five feet.

In September of 2002, a habitat suitability model was released by the New Mexico State University Coop Unit (Young et al. 2002). The model identified many areas throughout the CFO as suitable

habitat for the falcon. Primarily, the habitat was centered around Hope, NM, and across the Indian Basin and Bogle flats south of Hope. The effort resulted in the CFO designation of the Hope Study Area for falcon habitat. Rangeland restoration to resemble historic grassland conditions and falcon survey efforts are concentrated in this area. Conservation measures for oil and gas development were developed with the help of the FWS specifically for the Area.

The Hope Study Area is made up of expansive grassland flats and elongated grassy bottoms bordered by limestone ridges. The vegetative makeup consists primarily of tobosa grass, burro grass, black and sideoats grama, soap-tree yucca, little-leaf sumac, American tarbush and a variety of other grasses and forbs intermingled throughout the grassland flats and bottoms. The limestone ridges are dominated by creosote, tarbush, catclaw acacia, broom snakeweed, beargrass, and a variety of grasses and forbs. Falcons inhabit open grasslands with scattered yuccas and mesquites. Although yuccas and mesquite are important, large unfragmented grasslands are key to the survival of the prey base for the species and thus the species itself.

Prey species of the falcon vary from small birds to insects (Hector 1985). Avian prey species include meadowlarks, common nighthawks, northern mockingbirds, western king birds, brown-headed cowbirds, Scott's oriole, mourning doves, cactus wrens, and pyrrhuloxia. Migratory bird numbers in New Mexico and the Chihuahuan Desert as a whole have declined and the Hope Study Area is no exception. Native brush encroachment and agricultural development, including pesticide contamination, account for much of the declining condition of desert grasslands and coastal prairies within the former range of the falcon. Within the historic falcon range of CFO, brush encroachment is mainly due to two main factors: historical overgrazing and wild fire suppression. Long term efforts to reduce the density of native brush and restore historic grasslands have occurred and is planned to continue in the falcon area.

On July 26, 2006, a new ruling concerning the falcon was published in the Federal Register (Vol. 71, No. 143, Pg. 42298). "The falcon is being re-established under section 10(j) of the Endangered Species Act of 1973, as amended (Act), and would be classified as a nonessential experimental population (NEP). The geographic boundary of the NEP includes all of New Mexico and Arizona." The notice also defines the falcon status on BLM managed lands as "threatened" under the Endangered Species Act for the purposes of Section 9 (Prohibited Acts).

Parcels -003, -004 and -005 contain suitable habitat for the Aplomado falcon.

3.11 Wildlife

Mammals known to live throughout the Field Office include various species of bats, desert cottontail, black-tailed jackrabbit, spotted ground squirrel, rock squirrel, pocket gopher, porcupine, coyote, gray fox, bobcat, raccoon, striped skunk, spotted skunk, mule deer, pronghorn, wood rat, and various other small rodents. Upland game bird species may include scaled quail, bobwhite quail, mourning dove, and lesser prairie-chicken. Several raptors inhabit the area, including Harris hawks, Swainson's hawks, and western burrowing owls.

Several raptor species use the southeastern New Mexico region as either migratory or permanent resident. Potential nesting habitat includes but is not limited to escarpments, cliff faces, and any tree large enough to support a nest. Nesting territories of some raptors remain remarkably stable from year to year. Furthermore, several species seldom build new nests, but repeatedly repair and reuse old ones. Alternate nest sites are contained within territories; therefore a specific nest

site may change annually. Limits of territories remain essentially constant (Newton 1979). The grasslands, riparian, and xeric-riparian areas provide hunting grounds. The area has an abundant food base to support a substantial population of raptors year round in most years.

Migratory Birds
Executive order #13186 titled "Responsibilities of Federal Agencies to Protect Migratory Birds" signed 1/10/01 requires that the BLM evaluate the effects of federal actions on migratory birds. A migratory bird inventory has not been completed for this area. Common migratory birds which may use the area as habitat include various species of song birds, owls, ravens, hawks, finches, doves, thrashers, and meadowlarks.

Water is a limiting factor for many animal species in the desert. There is numerous wildlife water developments scattered throughout the Field Office that have been installed for water distribution and availability for wildlife during dry times.

Parcels -003, and -009 include known raptor nests within the boundary of the proposed lease parcels.

3.12 Range

The lease sale covers all or parts of nineteen (18) grazing allotments; Azotea Mesa, Three Forks Canyon, Antelope Sink, Dayton, Siegrest Draw, Black Muhley, Beardon Canyon, Rain Springs, Black River, Lobo Ranch, Turkey Track (managed out of the Roswell Field Office), Maljamar South, Salt Lake, San Simon Swale, Hart Ranch, Deep Wells, Old Baldy, and Javelina Basin. Nine (9) of the allotments are west of the Pecos River (Azotea Mesa, Three Forks Canyon, Antelope Sink, Dayton, Siegrest Draw, Black Muhley, Beardon Canyon, Rain Springs, Black River, Lobo Ranch). The remaining grazing allotments are all on the east side of the Pecos River. The allotments are run as a year-long cow-calf operation. Most of the grazing permittees follow some type of deferred-use rotation system, in which one or more pastures within the allotment receive some growing rest. Range improvement projects such as windmills, water delivery systems (pipelines, storage tanks, and water troughs), earthen reservoirs, fences, and brush control projects are located within the proposed lease sale area. In general, an average rating of the rangeland within this area is six acres per animal unit month (AUM). One cow needs about 72 acres per year, allowing about nine cows per section.

3.13 Visual Resources

There are four categories of Visual Resource Management Objectives. Each of the different class objectives are described below with the appropriate lease parcels noted.

Class I Objective: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

The following leases parcels are within Class I Objectives: None

Class II Objective: The objective to this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

The following lease parcels are within Class II Objectives: None

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

The following lease parcels are within Class III Objectives: Parcel: -007.

Class IV Objective: The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

All remaining parcels analyzed thru this document are located in areas managed under Class IV Objectives.

3.14 Recreation

The proposed lease parcels are all within dispersed recreation areas subject to public use. Dispersed recreation areas are areas that are used by recreationists as they desire. The Carlsbad Field Office is flanked on the west by the Guadalupe Mountains, the Pecos River Valley which cuts the resource area roughly in half, and the sand dunes which dominate the eastern half of the Field Office. The river is favored by the public for fishing, camping, hunting, and other outdoor recreation activities. The sand dunes east of Carlsbad include two Off-Highway Vehicle (OHV) sites and are addressed below in the section 3.17. The Guadalupe Mountains provide various hiking and hunting opportunities. Activities from hunting and four-wheeling to hiking, horseback riding and bird watching are popular in dispersed recreation areas.

3.15 Cave/Karst

Portions of this project are located in gypsum karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Gypsum karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

The BLM categorizes all areas within the Carlsbad Field Office as having either low, medium, high or critical cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to fresh water aquifers. A high karst zone is defined as an area occurring in known soluble rock types and containing a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat. A medium karst zone is defined as an area occuring in known soluble rock types but may have a shallow insoluble overburden. These areas may contain isolates karst features such as caves and sinkholes. Groundwater recharge may not be wholly dependent on karst features but the karst features still provide the most rapid aquifer recharge in response to surface runoff.

Sinkholes and cave entrances collect water and can accumulate rich organic materials and soils. This, in conjunction with the stable microclimate near cave entrances, support a greater diversity and density of plant life which provides habitat for a greater diversity and density of wildlife such as raptors, rodents, mammals, and reptiles.

The interior of the caves support a large variety of troglobitic, or cave environment-dependent species. The troglobitic species have adapted specifically to the cave environment due to constant temperatures, constant high humidity, and total darkness. Many of the caves in this area contain fragile cave formations known as speleothems.

Parcel -007 is located within a critical karst zone. Parcels -001, and -002 are located within a designated high karst zone. Parcels -003, -004, and -005 are located in a medium karst zone.

3.16 Environmental Justice

Executive Order 12898, issued on February 11, 1994, addresses concerns over disproportionate environmental and human health impacts on minority and low-income populations. The impetus behind environmental justice is to ensure that all communities, including minority, low-income, or federally recognized tribes, live in a safe and healthful environment. The October 2011 Oil and Gas Lease Sale will not be out of conformance with this executive order.

Portions of the City of Carlsbad and the City of Hobbs consist of minorities with some low-income populations. However, none of the leases nominated fall within the city limits of either city. Most of the populations that lie near these leases are employed by the agricultural or mining sector and do not fall under the coverage of this executive order.

ENVIRONMENTAL IMPACTS

4.0 Environmental Consequences

4.1 Assumptions for Analysis

The act of leasing parcels would, by itself, have no impact on any resources in the CFO. All impacts would be linked to as yet undetermined future levels of lease development.

If lease parcels were developed, short-term impacts would be stabilized or mitigated within five years and long-term impacts are those that would substantially remain for more than five years. Potential impacts and mitigation measures are described below.

Assumtions used in the analysis regarding resource impacts are based on past development knowledge and practices and resource concerns specific to each individual parcel.

Cumulative impacts include the combined effect of past projects, specific planned projects and other reasonably foreseeable future actions such as other infield wells being located within these leases. Potential cumulative effects may occur should an oil and gas field be discovered if these parcels are drilled and other infield wells are drilled within these leases or if these leases become part of a new unit. All actions, not just oil and gas development may occur in the area, including non-federal actions.

4.2 Effects from the No Action Alternative

Under the No Action Alternative, the twenty three (23) parcels totaling 11,082.26 acres from the October 2011 lease sale would not be leased. There would be no subsequent impacts from oil and/or gas construction, drilling, and production activities. The No Action Alternative would result in the continuation of the current land and resource uses in the proposed lease areas. The No Action Alternative is also used as the baseline for comparison of alternatives.

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 lands to be drained by wells on adjacent private or state lands. Consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availability of other energy sources, economics, demography, and weather or climate. If the BLM were to forego leasing and potential development of those minerals, the assumption is the public's demand for the resource would not be expected to change. Instead, the undeveloped resource would be replaced in the short- and long-term by other sources that may include a combination of imports, using alternative energy sources (e.g. wind, solar), and other domestic production. This displacement of supply would offset any reductions in emissions achieved by not leasing the subject tracts in the short-term**.**

4.3 Analysis of the Action Alternatives

4.3.1 Air Quality Impacts from All Action Alternatives

Leasing the subject tracts would have no direct impacts to air quality. Any potential effects to air quality from sale of lease parcels would occur at such time that the leases were developed. Potential impacts of development would include increased air borne soil particles blown from new well pads or roads, exhaust emissions from drilling equipment, compressor engines, vehicles, flares, exhaust and fugitive dust emissions from operation and maintenance, and dehydration and separation facilities, and volatile organic compounds during drilling or production activities.

In order to reasonably quantify emissions associated with well exploration and production

activities, certain types of information are needed. Such information includes a combination of activity data such as the types of equipment needed if a well were to be completed successfully (e.g. compressor, separator, dehydrator), the technologies which may be employed by a given company for drilling any new wells, area of disturbance for each type of activity (e.g. roads, pads, electric lines, compressor station), number of days to complete each kind of construction, number of days for each phase of drilling process, type(s), size, number of heavy equipment used for each type of construction (backhoe, dozer, etc.), number of wells of all types (shallow, deep, exploratory, etc.), compression per well (sales, field booster), or average horsepower for each type of compressor. The degree of impact will also vary according to the characteristics of the geologic formations from which production occurs. Currently, it is not feasible to directly quantify emissions; however, presented below are the potential development scenarios that could result from selection of the proposed action or the preferred alternative. What can be said is that exploration and production would contribute to incremental increases in overall air quality emissions associated with oil and gas exploration and production into the atmosphere.

The most significant criteria pollutants emitted by oil and gas development are VOCs, PM10 and NOx and for gas production CO. VOCs are a potential problem as they contribute to ozone pollution which is the pollutant of most concern to the CFO. The vast majority of VOCs emissions in the CFO come from biogenic (the plant community) rather than anthropogenic sources (BLM 2010). The additional VOCs emitted from the new oil and gas development on these leases are likely too small to have a significant effect on the overall ozone levels of the area.

Potential Mitigation:

The BLM encourages industry to incorporate and implement BMPs, which are designed to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field production and operations. Typical measures include: adherence to BLM's NTL 4(a) concerning the venting and flaring of gas on Federal leases; for natural gas emissions that cannot be economically recovered, flare hydrocarbon gases at high temperatures in order to reduce emissions of incomplete combustion; water dirt roads during periods of high use in order to reduce fugitive dust emissions; collocate wells and production facilities to reduce new surface disturbance; implementation of directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores; suggest that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and perform interim reclamation to re-vegetate areas of the pad not required for production facilities and to reduce the amount of dust from the pads. In addition, the BLM encourages industry to participate in the Gas STAR program that is administered by EPA. The Natural Gas STAR program is a flexible, voluntary partnership that encourages oil and natural gas companies to adopt proven, cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions.

The CFO recently purchased an infrared camera designed to detect natural gas leaks on and around well pad and pipeline facilities. CFO inspection personnel have been trained to operate the camera and CFO is currently developing a strategy to implement the use of the camera in cooperation with oil and gas operators to detect and eliminate natural gas leaks in well pad and pipeline infrastructure.

4.3.2 Climate

The assessment of GHG emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the proposed action on climate—that is, while BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. The BLM does not have the ability to associate a BLM action's contribution to climate change with impacts in any particular area. The technology to be able to do so is not yet available. 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 and determining the significance of any discrete amount of GHG emissions is beyond the limits of existing science. When further information on the impacts to climate change is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate.

Leasing the subject tracts would have no direct impacts on climate as a result of GHG emissions. There is an assumption, however, that leasing the parcels would lead to some type of development that would have indirect effects on global climate through GHG emissions. However, those effects on global climate change cannot be determined. (Refer to the cumulative effects section, Chapter 4 for additional information.) It is unknown whether the petroleum resources specific to these leases in the Proposed Action are gas or oil or a combination thereof.

Oil and gas production in New Mexico is concentrated in the northwest corner, the San Juan Basin, and the southeast corner, the Permian Basin. Production in the San Juan Basin is mostly natural gas while production in the Permian Basin is mostly oil. Production statistics developed from EPA and New Mexico Oil Conservation Division for 2008 are shown in table below for the US, New Mexico and for wells on federal leases in each basin.

2008 Oil and Gas Production

Location	Oil (bbl)	% U.S. Total	Gas (MMcf)	% U.S. Total
United States	1,811,816,000	100	25,754,348	100
New Mexico	60,178,252	3.32	1,473,136	5.72
Federal leases in New Mexico	25,700,000	1.42	920,000	3.57
San Juan Basin	1,600,000	0.09	709,000	2.75
Permian Basin	24,100,000	1.33	211,000	0.82

In order to estimate the contribution of Federal oil and gas leases to greenhouse gases in New Mexico it is assumed that the percentage of total U.S. production is comparable to the percentage of total emissions. Therefore, emissions are estimated based on production starting with total emissions for the United States from EPA 2010, and applying production percentages to estimate emissions for the Permian Basin. It is understood that this is a rather simplistic technique and assumes similar emissions in basins that may have very different characteristics and operational procedures, which could be reflected in total emissions. This assumption is adequate for this level of analysis due to the unknown factors associated with eventual exploration and development of the leases. However, the emissions estimates derived in this way, while not

precise will give some insight into the order of magnitude of emissions from federal oil and gas leases administered by the Bureau of Land Management (BLM) and allow for comparison with other sources in a broad sense.

2008 Oil and Gas Field Production Potential Emissions

Location	**Oil (Metric tons of CO_2e)**		**Gas (Metric tons of CO_2e)**		**Total O&G Production**	**%U.S. Total GHG emissions**
	CO_2	**CH_4**	**CO_2**	**CH_4**		
United States	500,000	28,400,000	8,500,000	14,100,000	51,500,000	0.74
New Mexico	16,607	943,287	486,196	806,513	2,252,603	0.03
Federal leases in New Mexico	7,092	402,844	303,638	503,682	1,217,257	0.02
San Juan Basin	442	25,080	233,999	388,164	647,684	0.01
Permian Basin	6,651	377,765	69,639	115,518	569,573	0.01

The table above shows the estimated greenhouse gas emissions for oil and gas field production for the U.S., New Mexico, and Federal leases by basin. Because oil and gas leaves the custody and jurisdiction of the BLM after the production phase and before processing or refining, only emissions from the production phase are considered here. It should also be remembered that following EPA protocols, these numbers do not include fossil fuel combustion which would include such things as truck traffic, pumping jack engines, compressor engines and drill rig engines. Nor does it include emissions from power plants that generate the electricity used at well sites and facilities. The estimates are only for operations, not for construction and reclamation of the facilities, which may have a higher portion of a projects GHG contribution. Note that units of Metric tons CO_2e have been used in the table above to avoid very small numbers. CO_2e is the concentration of CO_2 that would cause the same level of radiative forcing as a given type and concentration of greenhouse gas. For comparison one million metric tons is equal to one teragram.

The table above provides an estimate of direct emissions that occur during production of oil and gas. This phase of emissions represents a small fraction of overall emissions of CO_2e from the life cycle of oil and gas. For example, acquisition (drilling and development) for petroleum is responsible for only 8% of the total CO_2e emissions, whereas transportation of the petroleum to refineries represents about 10% of the emissions, and final consumption as a transportation fuel represents fully 80% of emissions (U.S.DOE, NETL, 2008)

To estimate the potential emissions from the proposed lease sale, an estimate of emission per well is useful. To establish the exact number of Federal wells in the Permian Basin is problematic due to the ongoing development of new wells, the abandonment of unproductive wells, land sales and exchanges, and incomplete or inaccurate data bases. CFO determined that the most transparent and publicly accessible method of estimating the number of active federal

wells in the New Mexico portion of the Permian Basin was to utilize the BLM New Mexico Geographic Information System (GIS) and the New Mexico Conservation Division ONGARD Data Search Page. ONGARD was searched for all Active, New, and Temporarily Abandoned wells in NM (54,137), then refined the search to include only Lea, Eddy, and Chavez counties (23,595), and finished the search by limiting the results to Federal wells (16,060).

Potential Greenhouse Gas Emissions Resulting from Proposed Lease Sale Referenced to Latest Available Estimates from 2008

Total U.S. GHG Emissions From All Sources	6,956,800,000 metric tons	100.00 %
Total U.S. GHG Emissions From Oil & Gas Field Production	51,500,000 metric tons	.4%
Total New Mexico Emissions From Oil & Gas Field Production	2,252,603 metric tons	.03%
Total San Juan Basin Emissions From Oil & Gas Field Production (16,435 wells)	647,684 metric tons	.01%
Total Permian Basin Emissions From Oil & Gas Field Production (16,060 wells)	569,573 metric tons	0.01%
Total Potential GHG Emissions From Oil & Gas Field Production at Full Development For Proposed Action (238 Wells)	8439 metric tons	0.0000012%
Total Potential GHG Emissions From Oil & Gas Field Production at Full Development For Preferred Alternative (137 Wells)	4858 metric tons	0.0000007%

The table above estimated that the total emissions from Federal leases in the Permian in 2008 were 569,573 metric tons CO_2e. Therefore, the estimate of emission per well is 35.46 metric tons CO_2e annually (See Section 5: Cumulative Impacts for more information).

Environmental impacts of GHG emissions from oil and gas consumption are not effects of the proposed action as defined by the Council on Environmental Quality, and thus are not required to be analyzed under NEPA. Greenhouse gas emissions from consumption of oil and gas are not direct effects under NEPA because they do not occur at the same time and place as the action. They are also not indirect effects because oil and gas leasing and production would not be a proximate cause of greenhouse gas emissions resulting from consumption.

Potential Mitigation:
The EPA's inventory data describes "Natural Gas Systems" and "Petroleum Systems" as the two major categories of total US sources of GHG gas emissions. The inventory identifies the contributions of natural gas and petroleum systems to total CO_2 and CH_4 emissions (natural gas and petroleum systems do not produce noteworthy amounts of any of the other greenhouse gases). Within the larger category of "Natural Gas Systems", the EPA identifies emissions occurring during distinct stages of operation, including field production, processing, transmission and storage, and distribution. "Petroleum Systems" sub-activities include production field operations, crude oil transportation and crude oil refining. Within the two categories, the BLM has authority to regulate only those field production operations that are related to oil and gas measurement, and prevention of waste (via leaks, spills and unauthorized flaring and venting).

The EPA data show that improved practices and technology and changing economics have reduced emissions from oil and gas exploration and development (Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006). One of the factors in this improvement is the adoption by industry of the BMPs proposed by the EPA's Natural Gas Energy Star program. The Field Office will work with industry to facilitate the use of the relevant BMPs for operations proposed on Federal mineral leases where such mitigation is consistent with agency policy.

4.3.3 Heritage Resources

4.3.3.1 Cultural Resources

There will be no immediate consequences to cultural resources as a result of the leasing of any of these parcels. This document deals only with lease sale actions; any subsequent realty or oil and gas projects or development will be subject to a separate NEPA analysis, as well as compliance with Section 106 of the National Historic Preservation Act (NHPA). Native American consultation was conducted by certified mail regarding lease sale activities and no Traditional Cultural Properties were identified. No specific heritage-related issues have been identified during the consultation process. The BLM does acknowledge that the potential exists for the Native American community to identify heritage-related issues in the future as specific actions are proposed.

As oil and gas development actions or associated realty actions are proposed, the areas of potential effect will be defined and assessments of the impacts upon cultural resources will be undertaken. All undertakings must comply with NEPA and NHPA Section 106. In the event that cultural resources are identified within a lease parcel, an evaluation of significance will occur and steps will be taken to mitigate impacts to that resource. Mitigation most frequently involves site avoidance, but may rarely include data recovery or compensation. The BLM has discretionary control over mitigation stipulations or avoidance measures imposed on a project.

The BLM may require development activities to be moved if necessary to protect cultural resources. This should allow nearly all sites to be avoided. Sites that cannot be avoided will be evaluated for listing in the National Register of Historic Places, and mitigation measures will be instituted, if the site is eligible. If development activities uncover subsurface sites, the lessee will

halt all work until the site can be evaluated and proper mitigation and avoidance measures identified.

Proposed Action and Perferred Alternative impacts would be the same. All lease parcels contain the Special Cultural Resource Lease Notice Stipulation (NM-LN-11).

Potential Mitigation:
Depending on the nature of the lease developments being proposed and the cultural resources potentially affected, compliance with NHPA Section 106 and Executive Order 13007 could require intensive cultural resource inventories, Native American consultation, and other mitigation measures to avoid adverse effects, the costs for which will be borne by the lessee. In addition, the BLM may require modifications to, or disapprove of, proposed activities that are likely to affect Traditional Cultural Places or sacred sites for which no mitigation measures are possible.

4.3.3.2 Paleontological Resources

While the act of leasing Federal minerals would produce no direct impacts to paleontological resources, subsequent development of a lease may produce impacts. Construction can directly impact fossil resources and newly built roads can open previously inaccessible areas to illegal collecting and vandalism of fossil resources. Scientifically noteworthy fossils and localities containing them are rare and not uniformly distributed throughout the geologic deposits. Loss of fossil resources or rare and scientifically important localities may have an unforeseen cumulative effect. Development could, however, increase the potential for discovering scientifically noteworthy fossil resources, if the nature and significance of the paleontological material is recognized. Adequate measures would be applied to ensure proper treatment and recovery of fossil resources.

These areas can be identified by referring to detailed geologic maps on a case-by-case basis. Should construction activities reveal any new paleontological sites, construction would be delayed until salvage efforts are undertaken. Construction could also be relocated, if the site were judged to have enough significance to warrant moving the activity.

There are no known paleontological resources located on any of the lease parcels.
Proposed Action and Perferred Alternative impacts would be the same.

Potential Mitigation:
BLM may require inventory for paleontological resources or the modifications to, or disapproval of, proposed activities that are likely to affect paleontological resources.

4.3.4 Water Resources

While the act of leasing Federal minerals would produce no direct impacts to water resources, subsequent development of a lease may produce impacts. Potential causes of impacts to water resources from drilling operations include the loss of drilling fluids, which sometimes contain heavy metals and other chemicals, or cement. This may pollute groundwater recharge areas and adversely impact water quality. Additionally, cementing operations could plug some of the

underground drainages and restrict groundwater flow, thereby reducing the recharge quality and quantity of springs, resurgences, and water tables and reducing the natural flow from seeps, springs, and water wells.

Potential causes of impacts from well production include the introduction of hydrocarbons or other chemicals into underground drainages and recharge areas as a result of leaks or spills from well casings, storage tanks, mud pits, pipelines, or other production facilities. This may also degrade water quality. In addition, drilling an oil or gas well may require large quantities of water, especially when drilling through porous and permeable formations. Fresh water is a scarce resource in the CFO and depending on the source used, natural flow from seeps, springs, and water wells could be reduced.

With any surface disturbance there will be decreased infiltration rates which may lead to more rapid runoff responses to precipitation events. The cumulative impacts of surface disturbance could lead to: 1) increased occurrence and magnitude of flood events, 2) increased erosion, 3) higher sediment loads in downstream surface waters, and 4) decreased groundwater recharge.

Proposed Action: Parcels -001, -002, -003, -004, -005, 017, -018, -020, and-022 contain a floodplain, playa, or seeps and tanks within the parcel boundary will be leased with SENM-S-18 Streams, Rivers and Floodplains.
Parcels -004, -005, and -009 contain a playa or Alkali Lake and have lease stipulation SENM-S-19 Playas and Alkali Lakes to protect these resources.

Parcels -007 and -017 contain a spring, seep or a tank and have SENM-S-20 Springs, Seeps and Tanks, respectively to protect water resources.

Preferred Alternative: Parcels -001, -002, 017, and -018 contain a floodplain, playa, or seeps and tanks within the parcel boundary will be leased with SENM-S-18 Streams, Rivers and Floodplains.

Parcel -009 contains a playa or Alkali Lake and have lease stipulation SENM-S-19 Playas and Alkali Lakes to protect these resources.

Parcel -017 contains a spring, seep or a tank and have SENM-S-20 Springs, Seeps and Tanks, respectively to protect water resources.

Potential Mitigation:
Mitigation will be deferred to the site-specific APD stage of development. Best Management Practices, such as moving a surface disturbing activity up to 200 meters to avoid impacts to water resources, would be incorporated into COAs.

4.3.5 Wetlands, Riparian and Floodplains

While the act of leasing Federal minerals would produce no direct impacts to wetlands, riparian areas, and floodplains, subsequent development of a lease may produce impacts. However, no adverse impacts are expected for wetlands, floodplains, or riparian areas, as stipulations for a minimum 200-meter buffer from the edge of the floodplain or wetland is applied to these parcels.

By moving pads, roads, and rights-of-way away from the edge of wetland or riparian areas, the values these areas provide should be protected.

The risk of hydrocarbon spills or seepage from any pits containing hydrocarbons or brines could threaten water resources. Poor cement jobs or corroded or bad casing or tubing during production operations can allow hydrocarbons to enter potentially viable aquifers. These events can propagate downstream and damage or destroy these fragile environments, which contain lush grasses, aquatic birds and their nesting environment, and aquatic life such as fishes and crustaceans.

Proposed Action: Parcels -001, -002, -003, -004, -005, 017, -018, -020, and-022 contain a floodplain, playa, or seeps and tanks within the parcel boundary will be leased with SENM-S-18 Streams, Rivers and Floodplains.
Parcels -004, -005, and -009 contain a playa or Alkali Lake and have lease stipulation SENM-S-19 Playas and Alkali Lakes to protect these resources.

Parcels -007 and -017 contain a spring, seep or a tank and have SENM-S-20 Springs, Seeps and Tanks, respectively to protect water resources.

Preferred Alternative: Parcels -001, -002, 017, and -018 contain a floodplain, playa, or seeps and tanks within the parcel boundary will be leased with SENM-S-18 Streams, Rivers and Floodplains.

Parcel -009 contains a playa or Alkali Lake and have lease stipulation SENM-S-19 Playas and Alkali Lakes to protect these resources.

Parcel -017 contains a spring, seep or a tank and have SENM-S-20 Springs, Seeps and Tanks, respectively to protect water resources.

Potential Mitigation:
The mitigation measures addressed below are meant to protect wetlands and riparian areas of concern. Surface-disturbing activities will be moved up to 200 meters from wetlands, floodplains and riparian areas. Some lease parcels may have unidentified windmills for livestock watering purposes and would require a COA for a 200-meter buffer at the APD stage. Site-specific COAs will be incorporated at the APD stage of development.

4.3.6 Soils

While the act of leasing Federal minerals would produce no direct impacts to soils, subsequent development of a lease may produce impacts. Soils would be impacted during the construction, operation, and rehabilitation phases of lease development. Off-road travel, excavation of caliche for road and pad construction, road and pad construction, and associated rights-of-way construction would cause soil particles to become unconsolidated and would remove vegetative cover. This would increase the susceptibility of the soil to both wind and water erosion. Soil horizons directly below caliche-capped roads and pads would be protected from erosion, but would not receive any infiltration. Nearby soils would be more susceptible to water erosion due to increased runoff from these caliche covered surfaces.

Additional wells would reduce the acreage available for grazing purposes, increase erosion, and decrease available vegetation for all proposed parcels. There would be the increased risk of hydrocarbon spills within the lease as well. Increased surface disturbance would also increase the risk of noxious weed invasion and spread.

Proposed Action: Parcels -007, -013, -015, and -024 contain gypsum soils and open dunes will be available for leasing with stipulation SENM-S-17 Slopes or Fragile Soils to protect these fragile soils and dune complexes.

Preferred Alternative: Parcel -015 contain gypsum soils and open dunes will be available for leasing with stipulation SENM-S-17 Slopes or Fragile Soils to protect these fragile soils and dune complexes.

Potential Mitigation:
Mitigation measures will be deferred to the site-specific APD stage of development. Best management practices (BMPs) would be incorporated into Conditions of Approval (COAs).

4.3.7 Vegetation

While the act of leasing Federal minerals would produce no direct impacts to vegetation, subsequent development of a lease may produce impacts. Vegetation would be lost within the construction areas of pads, roads, and rights-of-way. Those areas covered in caliche, such as pads and roads, would have no vegetation for the life of the well. Rights-of-way could revegetate in one to two years with proper reclamation and adequate precipitation. Poor reclamation practices followed by inadequate precipitation over several growing seasons could result in loss of vegetative cover, leading to weed invasion and deterioration of native vegetation.

Impacts to vegetation depend on development. These acres would produce no vegetation, because of caliche covered surfaces with each well in production. These acres should be in adequate vegetative cover in three to five growing seasons, if proper reclamation procedures are followed and adequate precipitation is received after the well is plugged.

Potential Mitigation:
Impacts from either the Proposed Action or the Preferred Alternative will be addressed with mitigation measures when site specific development proposals are received and will be incorporated as COAs.

4.3.8 Noxious Weeds

While the act of leasing Federal minerals would produce no direct impacts to noxious weeds, subsequent development of a lease may produce impacts. Any surface disturbance could establish new populations of invasive nonnative species, although the probability of this happening cannot be predicted using existing information. At the APD stage, BLM requirements for use of weed control strategies would minimize the potential for the spread of these species.

Potential Mitigation:
New infestations of noxious weeds would be prevented or kept to small localized areas on drill pads if stipulations for proper control methods are followed; however, as current populations of noxious weeds do exist, surface disturbance associated with lease development could allow the populations to increase in size or spread to other sites. Weed seeds may be picked up on the tires of vehicles and then spread across the landscape. If noxious weeds are detected, abatement measures would be implemented. These include weed inventory surveys, weed monitoring programs, and a spraying program.

The spraying program would reduce or eliminate existing populations, control the spread of current populations, or prevent the establishment of new populations. Measures to ensure the prevention of the spread of noxious weeds will be in place, such as the washing of vehicles before leaving infested areas. The CFO works closely with the surrounding communities and the oil and gas industry to monitor and chemically treat heavily infested areas before habitat areas are invaded.

All surface disturbing activities that could result from the Competitive Oil and Gas Lease Sale will have the following COA: The operator will be held responsible if noxious weeds become established within the areas of operations. Weed control will be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated infrastructure, and adjacent land affected by the establishment of weeds due to the action. The operator must consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

Impacts from either the Proposed Action or the Preferred Alternative will be addressed with mitigation measures when site specific development proposals are received and will be incorporated as COAs.

4.3.9 Special Status Species

While the act of leasing Federal minerals would produce no direct impacts to special status species, subsequent development of a lease may produce impacts. Impacts could result from increased habitat fragmentation, noise, or other disturbance during development.

<u>Lesser Prairie-Chicken</u>
Development of leases with suitable habitat could potentially impact local populations of lesser prairie-chicken (LPC). Construction of the location and around-the-clock noise generated from drilling could impact the lesser prairie-chicken by reducing the establishment of seasonal "booming grounds" or leks, thus possibly reducing reproductive success in the species. It is believed that the noise generated by drilling rigs or unmuffled propane- or diesel-operated pumpjack motors could mask the booming of the male prairie-chicken. Female LPCs, unable to hear the males, would not arrive at the booming ground, causing courtship interaction and reproduction to decrease. Decreased reproduction and the loss of recruitment into the local population would result in an absence of younger males to replace mature males once they expire, eventually causing the lek to disband and become inactive. Additionally, habitat fragmentation caused by development could decrease the habitat available for nesting, brooding and feeding activities.

Sand Dune Lizard

If sand dune lizards are present impacts to sand dune lizards, if any, would be minimal because parcels that contain suitable habitat will contain a stipulation requiring a buffer up to 200 meters. Construction in sand dune complexes that are suitable habitat or occupied habitat could reduce the size of habitat available to the species or extirpate sand dune lizard populations from the area. This could be avoided as long as infrastructure associated with oil and gas development is moved out of occupied or suitable sand dune lizard habitat.

Proposed Action:

Parcels -009, -013, -015, -017, -018, -019, -020, -021, -022, -023, and -024 would be leased under this alternative.

Parcels -009, -013, -015, -017, -018, -019, -020, -021, -022, -023, and -024 include suitable habitat for lesser prairie-chicken and will be available for leasing with stipulations (SENM-S-22) for the development of these parcels attached as prescribed in the Special Status Species RMPA.

> Stipulations for Lesser Prairie-Chicken Habitat
>
> Oil and gas activities, including 3-D geophysical exploration and drilling, will not be allowed in lesser prairie-chicken habitat during the period from March 1 through June 15 annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration or 3-D seismic operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pumpjack engines must be muffled or otherwise controlled so as not to exceed 75 decibels measured at 30 feet from the source of the noise.

The proposed action will not jeopardize the existence of this proposed species. Therefore a formal conference with the USFWS is not required.

In light of these requirements and mitigation measures, minimal impacts to the LPC are anticipated as a result of oil and gas activity.

Exceptions to the above requirements will be considered in emergency situations such as mechanical failures; however, these exceptions will not be granted if the BLM determines on the basis of biological data or other relevant facts or circumstances that the grant of an exception would disrupt prairie-chicken booming activity during the breeding season. Requests for exceptions on a nonemergency basis may also be considered, but these exceptions will not be granted if the BLM determines that there are prairie-chicken sightings, historic leks, or active leks in suitable habitat within 1.5 miles of the proposed location. The special status species RMPA also identifies where nonemergency exceptions will not be granted, including Habitat Evaluation Areas.

If observations of lesser prairie-chickens are made, immediate contact with the local BLM office is required.

Preferred Alternative:
Parcels -009, -015, -017, -018, -019, -021, and -023 would be leased under this alternative.

The preferred alternative would be the same as the proposed action except that parcels -013, -020, -022, and -024 will be deferred under the preferred alternative.

Parcel -013 is deferred from the preferred alternative. The parcel is located along the outer boundary of a Habitat Evaluation Area (HEA). This parcel is being looked at to determine if the habitat is present to be included within the existing HEA. If it is determined to have the necessary habitat type present the added acreage will be included with the HEA and be considered as part of the evaluation process to be converted and managed as a viable habitat area (HA). We are deferring the parcel until this process can be evaluated and completed.

Parcel -020, -022, and -024 will be deffered under this alternative pending exchange with the State of New Mexico. These parcels would be exchanged with the State of New Mexico for lands that contain LPC habitat in the Roswell BLM Field Office.

Potential Mitigation:
Special Status Species RMPA
Parcels nominated in these areas are reviewed by the State Director for concurrence based on the Record of Decision and Approved Resource Management Plan Amendment of April 2008. The BLM will continue to require oil and gas lessees to operate in a manner that will minimize adverse impacts to wildlife and special status species. To that end, the BLM will continue to apply reasonable measures to all oil and gas activities.

Leasing with requirements for Plans of Development (PODs) or Conditions of Approval (COAs) to ensure orderly development within a minimum of surface impact in lesser prairie-chicken and sand dune lizard habitats will be considered on a case-by-case basis, providing impacts from exploration and development will not cause unnecessary or undue impact to efforts to restore habitat. PODs may not be required for every existing lease on the Planning Area, but are required when requested by the BLM.

Lesser Prairie-Chicken
The Pecos District Special Status Species Resource Management Plan Amendment of 2008 affords lesser prairie-chickens specific protection measures pertaining to new drilling. The protections include a ban on new drilling during the breeding season (between March 1 and June 15) and a restriction on other production activities, such as land survey and construction, between the hours of 3 a.m. and 9 a.m. These restrictions apply to areas that contain lesser prairie-chicken habitat consisting of tall bunchgrasses (*Andropogon* spp., *Sporobolus* spp.), sand sagebrush (*Artemisia filifolia*), and typically shinnery oak (*Quercus havardii*). Exceptions to the stipulations will be considered under the criteria set forth in the special status species RMPA.

In addition, raptors have been observed using plugged and abandoned well markers as perches. Artificial perches may increase raptor presences in a given area. Furthermore, artificial perches

may provide strategically located vantage points and may improve the hunting efficiency of raptors. In order to improve the probability of maintaining a stable lesser prairie-chicken population, a low-profile COA for plugged and abandoned well markers will be attached to all APDs located within lesser prairie-chicken habitat. The well marker must be approximately 2 inches above ground level and contain the operator's name, lease name, well number, and location, including unit letter, section, township, and range. This information must be welded, stamped, or otherwise permanently engraved into the metal of the marker.

4.3.10 Threatened and Endangered Species

Northern aplomado falcons (falcons) are located in intact, productive grasslands with low human activity levels in core population areas in Chihuahua, Mexico. This suggests that they have limited tolerance for modification to their habitat. Impacts to falcons in the localized area, specifically while drilling the well and during construction of the drilling pad, access road, and associated infrastructures, may include but are not limited to: disruptions in breeding cycles, habitat degradation and fragmentation, avoidance of habitat during construction, and a decrease in prey base. These actions cause temporary disturbances due to the general increase in human activity and noise in the area. Longer term impacts would be due to the direct removal of habitat the size of the project's footprint causing a reduction in habitat for prey and fragmenting previously contiguous foraging area for falcons.

The affects of oil and gas development on avian prey varies with each species. Numerous studies indicate that fragmentation, edge effects, and habitat isolation result in loss of breeding habitat for certain avian species. Increasing the loss of breeding habitat for prey species will, over time, lower the overall availability of prey species for the falcon, thus reducing the suitability of the habitat for falcons. A reduction in falcon suitability may cause falcons to avoid the project area for the duration of the project with no guarantee that the species will return following final abandonment.

Any proposed development of the proposed lease parcels will potentially cause the destruction of small passerine nests. Various passerines and other avian species are the prey for the aplomado falcon. Currently there is limited information regarding how and at what level oil and gas development affects the prey base and thus the falcon. Therefore, impact analysis is based on the best currently available data.

Special conservation measures, applied to this project either as conditions-of-approval on the application or as lease stipulations, were designed to reduce impacts to potential falcon habitat and nesting structures. For example, yuccas over five feet in height will not be damaged by any activity associated with the project. Avoiding the yuccas will ensure that nesting structures will remain available for future nest sites. All active raptor nests will be avoided by a minimum of 400 meters and inactive raptor nests by a minimum of 200 meters by all activities associated with the project.

To reduce the cumulative footprint of the project, the well pad size will not exceed 300 ft x 390 ft (2.68 acres), unless multiple wells are drilled on the same location, and roads will not exceed 30 ft in width. Infrastructure, such as roads, pipelines, and powerlines have been designed in corridors to reduce fragmentation. To reduce the potential for mortality for both falcons and prey species, reserve pits are not allowed unless they can be effectively netted. Steel circulation tanks

are recommended instead. After drilling activities are complete, interim reclamation is required to return unused disturbed portions of the site to pre-construction conditions. The reclamation protocol follows the final abandonment and reclamation protocol and includes removing caliche and seeding with a seed mix incorporating plant species found in the local area as found below in the mitigations section.

By following the described conservation measures, this project may affect, but is not likely to adversely affect northern aplomado falcon. This determination has received concurrence from the FWS through the Section 7, interagency process.

BLM Natural Resource Specialists and Wildlife Biologists will work with the applicant to locate the well and infrastructure in a location that minimizes potential impacts to aplomado falcon habitat and nesting structures, during the APD stage of development.

Proposed Action: Parcels -003, -004 and -005 contain suitable habitat for the Aplomado falcon. Due to the habitat present within the parcels, development can be managed effectively with the Aplomado falcon stipulation SENM-S-31.

Preferred Alternative parcels -003, -004, and -005 are deferred due to the potential land exchange with the State of New Mexico for lands that contain LPC habitat in the Roswell BLM Field Office.

Potential Mitigation:
Northern Aplomado Falcon
Development of these leases could potentially impact local populations of northern aplomado falcon. Mitigations for those areas that possess suitable falcon habitat include (for specific detail, see attached stipulation):

- A plan of development for the entire lease must be submitted prior to any development
- Special well pad construction and reclamation measures must be implemented
- Utilize existing well pads where possible
- Earthen tanks for drilling and disposal are not allowed unless they can be effectively netted. Otherwise, a steel tank circulation system must be used
- All yuccas and/or other nesting structure >5’tall must be avoided
- All development activities will avoid inactive raptor/raven nests by >200m and active raptor/raven nests by >400m.

Based on the current levels of grazing, brush treatment efforts and the mitigative efforts to alleviate potential oil and gas impacts to avian species, a "not likely to adversely affect" situation exists.

4.3.11 Wildlife

While the act of leasing Federal minerals would produce no direct impacts to wildlife, subsequent development of a lease may produce impacts. Impacts could result from increased habitat fragmentation, noise, or other disturbance during development. The severity of effects depends on the sensitivity of the species affected. The species present in these areas tend to vacate traditional habitats under continued and increasing pressure from petroleum activities. Additional wells would increase the risk to wildlife in the developing area as a result of noise

and visual impacts from compressor stations, an increased number of operating pumpjacks, powerlines (which can hum in the wind), drilling rigs, and increased vehicular traffic, among others. This could cause wildlife to avoid these areas, including wildlife watering units, and relocate to other, less-developed, areas. Disturbance to the surface itself could potentially degrade or fragment habitat to such a degree that it may become unusable for certain species.

Other forms of surface disturbance could take place on developing leases, such as the installation of caliche pits, the addition of oil- and gas field infrastructure such as powerlines, pipelines, tank batteries or other storage facilities, and the construction of new roads fragment habitat and increase the risk of collision between vehicles and wildlife. Effects on raptor nests or heronries could result in a reduction of nesting habitat for raptors or herons, thus reducing the likelihood of sustaining the local population.

The affects of human-associated disturbance is a primary threat to raptor populations. The construction and development associated with oil and gas exploration and/or development may adversely affect potential nest sites and associated foraging area that support the pairs nesting effort. The specific effects and tolerance limits to disturbance on raptors vary among and within raptor species. This is due to the broad range of direct and indirect human-associated impacts and the fluctuating levels of sensitivity for individual raptors, depending on life stage and time of year. Behavioral data suggests that adults that become sensitized to human presence are less than normally attentive to their young, which can reduce fledging success. Furthermore, behavioral data suggests that raptors have the tendency to shift or expand their home ranges, or move to new areas (Anderson et al. 1990). Disruption of foraging areas can result in lowered hunting success, increased intraspecific encounters, and reduced food intake (Anderson 1984). Raptors displaced from foraging areas may have increased energy expenditures and less time available for other activities, and their productivity could be adversely affected (Stalmaster and Kaiser 1997). The noise caused by pump jack engines could cause potential abandonment of nests or a shift or expansion of home range. Adherence to the conditions of approval and mitigation measures (Sec. 2.1) is critical for the protection of this resource. In order to minimize human disturbance spatial and/or temporal buffer zones can protect raptors during periods of extreme sensitivity. Raptors may tolerate considerable noise close to their nests if they are familiar with it, especially if humans are not visible or otherwise obviously associated with it (Schueck et al. 2001). Potentially, if a disturbance is periodic and ongoing when adults first arrive at their nests and not perceived as threatening, raptors may habituate to them.

Impacts to wildlife are the same under each action alternative for the parcels listed below. Parcels -003, and -009 include known raptor nests within the boundary of the proposed lease parcels.These parcels will be available for leasing with lease stipulation SENM-S-16 Raptor Nests and Heronries to protect any raptors and nests that may be present.

Under the preferred alternative parcel -003 is deferred due to the potential land exchange with the State of New Mexico for lands that contain LPC habitat in the Roswell BLM Field Office.

Impacts to wildlife and wildlife habitat are also addressed below in the Cumulative Impact Section.

Potential Mitigation:
The BLM will continue to require oil and gas lessees to operate in a manner that will minimize adverse impacts to wildlife. To that end, the BLM will continue to apply reasonable measures to all oil and gas activities.

Site-specific COAs or BMPs may be developed at the APD stage to further mitigate direct and indirect effects.

4.3.12 Range

While the act of leasing Federal minerals would produce no direct impacts to livestock grazing, subsequent development of a lease may produce impacts.

The lease sale covers all or parts of nineteen (18) grazing allotments; Azotea Mesa, Three Forks Canyon, Antelope Sink, Dayton, Siegrest Draw, Black Muhley, Beardon Canyon, Rain Springs, Black River, Lobo Ranch, Turkey Track managed out of the Roswell Field Office, Maljamar South, Salt Lake, San Simon Swale, Hart Ranch, Deep Wells, Old Baldy, and Javelina Basin. Nine (9) of the allotments are west of the Pecos River (Azotea Mesa, Three Forks Canyon, Antelope Sink, Dayton, Siegrest Draw, Black Muhley, Beardon Canyon, Rain Springs, Black River, Lobo Ranch). The remaining grazing allotments are all on the east side of the Pecos River.
The construction of pads, pits, roads, and rights-of-way would cause forage to be lost on portions of all nineteen (18) grazing allotments. On average, the grazing of vegetation by livestock takes approximately 6 acres of vegetation per Animal Unit Month (AUM), which is the amount of forage needed to support one cow for one month. In total, the proposed action could result in the loss of 523.6 acres, and the preferred action could result in the the loss of 301.4 acres of forage. These totals for losses of available forage are based on the amount of Federal mineral estate in correlation with the amount of Federal surface used to determine the amount of available forage within each individual grazing allotment. (Example; *Even though there may be a Federal grazing allotment, it could be predominately made up of State lands. The locations or placement of well pads and infrastructure on state lands would not create a impact to the amount of available forage calculated for Federal acreage within the grazing allotment. However there will be a loss of available forage within the State portion of the grazing allotment. See parcel -013 listed below under the proposed action and preferred action.)*

Proposed Action:
Parcels -001, -002, -003, -004, -005, -007, -009, -013, -015, -017, -018, -019, -020, -021, -022, -023, and -024 would be leased under this alternative. The potential surface disturbance for each of the affected allotments is as follows:

Azotea Mesa Allotment; Parcel -001would impact 39.6 acres.

Three Forks Canyon Allotment; Parcel -002 would impact 2.2 acres.

Antelope Sink and Dayton allotments; Parcels -003 would impact 4.4 acres.

Siegrest Draw Allotment; Parcel -004 would impact 39.6 acres.

Siegrest Draw Allotment and Black Muhley Allotment; Parcel -005 would impact 39.6 acres.

Black River and Lobo Ranch Allotments; Parcel -007 would impact 33 acres.

Turkey Track Allotment; Parcel -009, would impact 24.2 acres.

San Simone Swale Allotment; Parcels -013 and -015 would impact 83.6 acres.

Old Baldy Allotment; Parcels -017 and -018 would impact 171.6 acres.

Javelina Basin Allotment; Parcel -019 and -021would impact 33 acres.

There are no BLM range allotments for parcels -020, -022, -023, and -024. The impacts for each parcel are listed below:

Parcel -020 would impact 11 acres.

Parcel -022 would impact 19.8 acres.

Parcel -023 would impact 11 acres.

Parcel -024 would impact 11 acres.

Preferred Alternative:
Parcels -003, -004, -005, -007, -013, -020, -022, and -024 are deferred in this alternative for various reasons listed in section 4 of this EA. Portions of the Antelope Sinks, Siegrest Draw, Black Muhley, Black River, Lobo, and San Simone Swale range allotments will not be affected under this alternative.

This alternative would lease parcels -001, -002, -009, -015, -017, -018, -019, -021, and -023. The potential surface disturbance resulting from the development of these parcels for each of the affected allotments is as follows:

Azotea Mesa Allotment; Parcel -001 would impact 39.6 acres.

Three Forks Canyon Allotment; Parcel -002 would impact 2.2 acres.

Turkey Track Allotment; Parcel -009, would impact 24.2 acres.

San Simone Swale Allotment; Parcel -015 would impact 19.8 acres

Old Baldy Allotment; Parcels -017 and -018 would impact 171.6 acres.

Javelina Basin Allotment; Parcel -019 would impact 22 acres.

Javelina Basin Allotment; Parcel -021 would impact 11 acres.

There is no BLM range allotments for parcels -023. The impacts for this parcel are listed below:

Parcel -023 would impact 11 acres.

There are occasional livestock injuries or deaths due to accidents such as collisions with vehicles, falls into mud pits or other excavations, or ingestions of plastic or other materials present at work sites. Construction activities can damage range improvements such as fences and pipelines. These impacts make day-to-day livestock management actions more difficult.

Potential Mitigation:
Mitigation will be deferred until the site-specific APD stage of development. The BLM currently consults grazing permittees on a site-by-site basis as part of the APD process. Best Management Practices will be incorporated into COAs.

4.3.13 Visual Resource Management

While the act of leasing Federal minerals would produce no direct impacts to visual resources, subsequent development of a lease may produce impacts. Oil and gas development can create many visual scars on the landscape. Development can create contrast to the landscape's natural form, line, color, and texture. Pads, tanks, roads, powerlines, and pipelines introduce unnatural forms into the landscape. Clearing for pads, roads, and pipelines create unnatural color, line and texture changes. Tanks and poles add vertical trends to generally flat landscapes. The more prominent these visual contrasts, the more a project will stand out and distract from the natural view of the landscape. The more unnatural distractions added to a landscape, the more unpleasing the landscape will look.

Each surface development visually impacts the landscape. Each project may meet or exceed the area's Visual Resource Management (VRM) objectives; however, as an entire oil field is developed, small visual impacts would accumulate to create harsh scars on the landscape. The cumulative effects would degrade the visual esthetics and public's appreciation for their surrounding environment. To avoid this result, all projects (regardless of VRM class) should be hidden, masked, and reclaimed as best as possible with BMPs and COAs.

Proposed Action: all parcels fall within VRM IV with the exception of Parcel -007 which falls within VRM III.

Preferred Alternative: No parcels fall within VRM III

Potential Mitigation:
Mitigation measures to reduce impacts of development and maintain Visual Resource Class Objectives will include landform considerations such as moving locations to areas with less slope, changing road width and grade, changing alignment to follow existing grades, and prohibiting dumping of excess material on downhill slopes. Earthwork COAs may include rounding or warping slopes, retaining rocks, trees and drainage, adding mulch, hydromulch, or topsoil, shaping cuts and fills to appear as natural forms, cutting rock areas so forms are

irregular, designing to take advantage of natural screens (i.e., vegetation, land forms), and grass seeding of cuts and fills.

Topography considerations may require locating projects away from prominent topographic features and designing projects to blend with topographic forms in shape and placement. Additional COAs for retaining vegetation may include using retaining walls on fill slopes, reducing surface disturbance, protecting roots from damage during excavations, mulching cleared areas, controlling planting times, furrowing slopes, planting holes on cut and fill slopes, choosing native plant species, stockpiling and reusing topsoil, fertilizing, mulching, and watering vegetation, utilizing existing roads, limiting work within construction area, selecting type of equipment to be used and minimizing clearing size.

Permanent structures are impacts for the life of the project. To minimize the number of visible structures, COAs will be applied, requiring use of earth-tone paints and stains and natural stone surfaces, burying all or part of the structure, selecting paint finishes with low levels of reflectivity (i.e., flat), redesigning structures to blend with surroundings, and relocating structures. Interim reclamation measures for the working life of the pad may be implemented to reduce visual impacts, such as partial revegetation of the pad after initial drilling is complete to allow only necessary surface use and access requirements. COAs will be added to the site-specific APD stage of development.

COAs may require utilities and rights-of-way related to the development of the proposed lease parcels to be stipulated by making crossings at right angles of corridors, setting structures a maximum distance from the crossing, leaving vegetation along the roadside, minimizing viewing time, and utilizing natural screening.

4.3.14 Recreation

While the act of leasing Federal minerals would produce no direct impacts to recreation, subsequent development of a lease may produce impacts. Potential impacts could affect dispersed recreation activities such as big game hunting in certain pastures of individual parcels, but these effects cannot be determined until site-specific development proposals are received at the APD stage.

Additional wells would reduce the acreage available for recreation in open space on public land. Dispersed recreation activities, such as off-road driving, hunting, and hiking could be impacted by increased traffic, visual intrusions, noise, trash, and other related results of oil and gas development. Additional aboveground facilities fragment open space and reduce the natural setting of areas. Some recreation pursuits could be limited by additional hazards created by facilities and infrastructure related to development.

Potential Mitigation:
Mitigations for impacts to recreation will be determined when specific sites for development are determined. Mitigations may include moving locations, increased safety precautions during construction, relocating existing trails, reducing visual impacts, implementing noise control devices on facilities, and co-locating facilities and corridors to reduce surface disturbance.

Impacts are the same for each action alternative.

4.3.15 Cave/Karst

While the act of leasing Federal minerals would produce no direct impacts to cave or karst resources, subsequent development of a lease may produce impacts. Cave and karst features provide direct conduits leading to groundwater. These conduits can quickly transport surface and subsurface contaminants directly into underground water systems and freshwater aquifers without filtration or biodegradation as a result of the development of oil and gas leases. In addition, contaminates spilled or leaked into or onto cave/karst zone surfaces and sub-surfaces may lead directly to the disruption, displacement, or extermination of cave species and critical biological processes. In extreme or rare cases, a buildup of hydrocarbons in cave systems due to surface leaks or spills could potentially cause underground ignitions or asphyxiation of wildlife or humans within the cave.

In cave and karst terrains, rainfall and surface runoff is directly channeled into natural underground water systems and aquifers. Changes in geologic formation integrity, runoff quantity/quality, drainage course, rainfall percolation factors, vegetation, surface contour, and other surface factors can negatively impact cave ecosystems and aquifer recharge processes. Blasting, heavy vibrations, and focusing of surface drainages can lead to slow subsidence, sudden collapse of subsurface voids, and/or cave ecosystem damage.

The construction of roads, pipelines, well pads and utilities can impact bedrock integrity and reroute, impede, focus, or erode natural surface drainage systems. Increased silting and sedimentation from construction can plug downstream sinkholes, caves, springs, and other components of aquifer recharge systems and result in adverse impacts to aquifer quality and cave environments. Any contaminants released into the environment during or after construction can impact aquifers and cave systems. A possibility exists for slow subsidence or sudden surface collapse during construction operations due to collapse of underlying cave passages and voids. This would cause associated safety hazards to the operator and the potential for increased environmental impact. Subsidence processes can be triggered by blasting, intense vibrations, rerouting of surface drainages, focusing of surface drainage, and general surface disturbance.

Blasting fractures in bedrock can serve as direct conduits for transfer of contaminants into cave and groundwater systems. Blasting also creates an expanded volume of rock rubble that cannot be reclaimed to natural contours, soil condition, or native vegetative condition. As such, surface and subsurface disruptions from blasting procedures can lead to permanent changes in vegetation, rainfall percolation, silting/erosion factors, aquifer recharge, and freshwater quality and can increase the risk of contaminant migration from drilling/production facilities built atop the blast area.

During drilling, previously unknown cave and karst features could be encountered. If a void is encountered while drilling and a loss of circulation occurs, lost drilling fluids can directly contaminate groundwater recharge areas, aquifers, and groundwater quality. Drilling operations can also lead to sudden collapse of underground voids. Cementing operations may plug or alter groundwater flow, potentially reducing the water quantity at springs and water wells. Inadequate

subsurface cementing, casing, and cave/aquifer protection measures can lead to the migration of oil, gas, drilling fluids, and produced saltwater into cave systems and freshwater aquifers.

Proposed Action: Parcel -007 is located within a critical karst zone. Parcels -001, and -002 are located within a designated high karst zone. Parcels -003, -004, and -005 are located in a medium karst zone.

Preferred Alternative: Parcels -001 and -002 will be offered for sale. These parcels are located in a high karst zone and will be leased with lease stipulations SENM-S-21 Caves and Karst and SENM-LN-1 Cave-Karst Occurrence Area to protect cave and karst resources.

Potential Mitigation:
Potential mitigations that could be developed during the APD and lease development stages may include: changes in drilling operations, special casing and cementing programs, modification in surface activities, cave/karst avoidance or other reasonable measures.

4.3.16 Environmental Justice

Issuing any or all of these leases may result in a major hydrocarbon discovery. Increased employment in Hobbs or Carlsbad would aid minority and low-income populations. Otherwise, the lease sale does not have potential to disproportionately affect minority or low-income populations. A major discovery of hydrocarbons resulting from this Oil and Gas Lease Sale could increase the populations of the Cities of Hobbs and Carlsbad, placing stress on housing, schools, commerce, and emergency services in Chaves, Eddy, and Lea Counties.

Potential Mitigation:
No mitigation would be required as a result of this project.

Potential Mitigation: None

5.0 Cumulative Impacts

Assumptions of total surface disturbance is based on estimating the maximum potential that could be developed within the nominated lease parcel relative to past development knowledge and practices and resource concerns within the parcels. Exploration and development of hydrocarbon resources outside of well-developed areas increases the distance required for roads, pipelines, and power lines.

The surface disturbance assumptions shown in the following tables estimate impacts associated with oil and gas exploration and development drilling activities that could occur at each lease parcel if it were fully developed. The CFO randomly sampled 70 new wells that had been drilled within the last 4 years to determine surface disturbance created by constructing an access road. The average length of new road required to drill a new well based on our random sample is 570 feet. The average surface disturbance of an oil or gas well pad is 300 feet by 300 feet.

Estimations for surface disturbance:

- Access Roads: = 0.2 acres disturbance per access road (14 foot-wide x 570 feet travel

way)

- Drill Pads: = 2 acres disturbance per well pad (300 feet x 300 feet)

Proposed Action:

Parcel	**Comments**	**Parcel** **Parcel Acreage**	**Potential Wells**	**Potential Acres Disturbed**
NM-201110-001 T.0230S, R.0230E, NM PM, NM Sec. 004 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	640.000	18	39.6
NM-201110-002 T.0230S, R.0230E, NM PM, NM Sec. 019 LOTS 4; 019 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	122.800	1	2.2
NM-201110-003 T.0180S, R.0240E, NM PM, NM Sec. 033 NWNW,S2NW,S2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-16 Raptor Nests and Heronries SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-31 Northern Aplomado Falcon	440.000	2	4.4

NM-201110-004 T.0190S, R.0240E, NM PM, NM Sec. 031 LOTS 1-4; 031 E2,E2W2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-19 Playas and Alkali Lakes Playa SENM-S-21 Caves and Karst SENM-S-31 Northern Aplomado Falcon	637.600	18	39.6
NM-201110-005 T.0190S, R.0240E, NM PM, NM Sec. 033 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-19 Playas and Alkali Lakes Playa SENM-S-21 Caves and Karst SENM-S-31 Northern Aplomado Falcon	640.000	18	39.6
NM-201110-007 T.0250S, R.0250E, NM PM, NM Sec. 030 LOTS 3-4; 030 E2,SENW,E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-17 Slopes or Fragile Soils Fragile soils - Gypsum SENM-S-20 Springs, Seeps and Tanks SENM-S-21 Caves and Karst SENM-S-25 Visual Resource Management SENM-S-32 VRM-Class III Guadalupe Escarpment SENM-S-39 Plan of Development SENM-S-42 Southern Guadalupe Escarpment Resources	517.280	15	33

NM-201110-009 T.0160S, R.0300E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW,SE; 031 N2NE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-16 Raptor Nests and Heronries SENM-S-19 Playas and Alkali Lakes Playa SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	393.150	11	24.2
NM-201110-013 T.0230S, R.0330E, NM PM, NM Sec. 006 LOTS 1-7; 006 S2NE,SENW,E2SW,SE; 007 LOTS 1-4; 007 NE,E2W2,S2SE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	1179.440	29	63.8
NM-201110-015 T.0230S, R.0340E, NM PM, NM Sec. 001 LOTS 1-4; 001 S2N2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	320.440	9	19.8
NM-201110-017 T.0250S, R.0360E, NM PM, NM Sec. 004 LOTS 3,4; 004 S2NW,S2; 005 LOTS 1-4; 005 S2N2,S2; 006 LOTS 7; 006 E2SW,SE; 007 LOTS 1,2; 007 NE,E2NW,N2SE; 009 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-20 Springs, Seeps and Tanks Earthen reservoir SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	2443.450	69	151.8

NM-201110-018 T.0250S, R.0360E, NM PM, NM Sec. 007 LOTS 3,4; 007 E2SW; 018 LOTS 1,2; 018 E2NW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	319.640	9	19.8
NM-201110-019 T.0250S, R.0360E, NM PM, NM Sec. 019 E2; 020 NWNW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens Windmill	360.000	10	22
NM-201110-020 T.0250S, R.0360E, NM PM, NM Sec. 028 SE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	160.000	5	11
NM-201110-021 T.0250S, R.0360E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.170	5	11
NM-201110-022 T.0250S, R.0360E, NM PM, NM Sec. 033 S2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens Windmill	320.000	9	19.8
NM-201110-023 T.0260S, R.0360E, NM PM, NM Sec. 013 W2E2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.000	5	11

NM-201110-024 T.0260S, R.0360E, NM PM, NM Sec. 024 W2W2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens	160.000	5	11
Total		8973.97	238	523.6

Cumulative Impact Table (Based on Full Field Development of the Proposed Action)

Preferred Alternative:

Parcel	**Comments**	**Parcel Acreage**	**Potential Wells**	**Potential Acres Disturbed**
NM-201110-001 T.0230S, R.0230E, NM PM, NM Sec. 004 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	640.000	18	39.6
NM-201110-002 T.0230S, R.0230E, NM PM, NM Sec. 019 LOTS 4; 019 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-LN-1 Cave - Karst Occurrence Area SENM-S-18 Streams, Rivers, and Floodplains SENM-S-21 Caves and Karst SENM-S-39 Plan of Development	122.800	1	2.2
NM-201110-009 T.0160S, R.0300E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW,SE; 031 N2NE;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-16 Raptor Nests and Heronries SENM-S-19 Playas and Alkali Lakes Playa SENM-S-22 Prairie Chickens SENM-S-47 Lease Reclamation	393.150	11	24.2

NM-201110-015 T.0230S, R.0340E, NM PM, NM Sec. 001 LOTS 1-4; 001 S2N2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-17 Slopes or Fragile Soils Fragile soils - open dunes SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	320.440	10	22
NM-201110-017 T.0250S, R.0360E, NM PM, NM Sec. 004 LOTS 3,4; 004 S2NW,S2; 005 LOTS 1-4; 005 S2N2,S2; 006 LOTS 7; 006 E2SW,SE; 007 LOTS 1,2; 007 NE,E2NW,N2SE; 009 ALL;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-20 Springs, Seeps and Tanks Earthen reservoir SENM-S-22 Prairie Chickens SENM-S-34 Zone 3 - POD	2443.450	69	151.8
NM-201110-018 T.0250S, R.0360E, NM PM, NM Sec. 007 LOTS 3,4; 007 E2SW; 018 LOTS 1,2; 018 E2NW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-18 Streams, Rivers, and Floodplains SENM-S-22 Prairie Chickens	319.640	9	19.8
NM-201110-019 T.0250S, R.0360E, NM PM, NM Sec. 019 E2; 020 NWNW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens Windmill	360.000	10	22
NM-201110-021 T.0250S, R.0360E, NM PM, NM Sec. 030 LOTS 3,4; 030 E2SW;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chicken	160.170	5	11

NM-201110-023 T.0260S, R.0360E, NM PM, NM Sec. 013 W2E2;	Lease with the following Stipulations: NM-11-LN Special Cultural Resource SENM-S-22 Prairie Chickens	160.000	5	11
Total		4919.65	137	301.4

Cumulative Impact Table (Based on Full Field Development of the Preferred Alternative)

Analysis of cumulative impacts for the Proposed Action and the Preferred Alternative for the development of oil and gas wells on public lands in the Carlsbad Field Office is based on location of the parcels and the potential mineral estate that could be developed.

Climate Change

This section incorporates an analysis of the contributions of the proposed action to GHG emissions and a general discussion of potential impacts to climate. The EPA's Inventory of US Greenhouse Gas Emissions and Sinks found that in 2007, total U.S. GHG emissions were over 7 billion metric tons and that total U.S. GHG emissions have increased by 17% from 1990 to 2007. Emissions increased from 2006 to 2007 by 1.4 percent (99.0 Tg. CO_2e). The following factors were primary contributors to this increase: (1) cooler winter and warmer summer conditions in 2007 than in 2006 increased the demand for heating fuels and contributed to the increase in the demand for electricity, (2) increased consumption of fossil fuels to generate electricity and (3) a significant decrease (14.2 percent) in hydropower generation used to meet this demand (EPA 2009).

On-going scientific research has identified the potential effects of anthropogenic GHG emissions such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N2O) and several trace gasses; changes in biological carbon sequestration; and other changes due to land management activities 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 natural GHG atmospheric concentration 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.

This incremental contribution to global GHG gases cannot be translated into effects on climate change globally or in the area of this site-specific action. As oil and gas production technology continues to improve, and because of the potential development of future regulation or legislation, one assumption is that reductions in the rate or total quantity of GHG emissions associated with oil and gas production are likely. As stated in the direct/indirect effects section under climate change, the assessment of GHG emissions and the resulting impacts on climate is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the proposed action on global or regional climate—that is, while BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. Therefore, the BLM does not have the ability to associate an action's contribution in a localized area to impacts on global climate change. Further, an IPCC assessment states that difficulties remain in attributing observed

temperature changes at smaller than continental scales. It is currently beyond the scope of existing science to predict climate change on regional or local scales resulting from specific sources of GHG emissions.

Currently, global climate models are inadequate to forecast local or regional effects on resources (IPCC, 2007; CCSP, 2008). However, there are general projections regarding potential impacts to natural resources and plant and animal species that may be attributed to climate change from GHG emissions over time; however these effects are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions (USFS, 2008).

The New Mexico Greenhouse Gas Inventory and Reference Case Projection 1990-2020 (Inventory) estimates that approximately 17.3 million metric tons of GHGs from the natural gas industry and 2.3 million metric tons of GHGs from the oil industry are projected in 2010 as a result of oil and natural gas production, processing, transmission and distribution. As of 2008, there were 23,196 oil wells and 27, 778 gas wells in New Mexico (NM well statistics).[1]

When compared to the total GHG emission estimates from the total number of oil and gas wells in the State, the average number of oil and gas wells drilled annually in the Field Office and associated GHG emission levels, represent an incremental contribution to the total regional and global GHG emission levels. The number of oil and gas wells that would eventually result from the proposed action would therefore likely represent an even smaller incremental contribution to GHGs emissions on a global scale.

The impact of climate change on BLM resources depends upon the location of the affected resource, its vulnerability and resiliency to change, and its relationship to the human environment. There will be positive and negative impacts of climate change, even within a single region. For example, warmer temperatures may bring longer growing seasons in some regions, benefiting farmers who can adapt to new conditions, but potentially harming native plant and animal species. In general, the larger and faster the changes in climate are, the more difficult it will be for human and natural systems to adapt.

Based on current assumptions for climate change, the CFO could see effects to water quantity, quality, and seasonal availability; agriculture and grazing; disease and pest outbreaks; shifting of seasons; shifts in plant and animal population, range, species diversity, and migration patterns;

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[1] In 2000, approximately 17 million metric tons and 2.3 million metric tons were respectively attributed to natural gas and oil activities. As of 2002, the Inventory indicates that there approximately 21,771 oil wells and 23,261 gas wells in the State. Significant uncertainties remain with respect to: the quality of historical field data, processing, and pipeline use of natural gas, does not factor in reclaimed wells and total number of new wells drilled per year; CO2 emissions from enhanced oil recovery, which have not been estimated; and refinery fuel use-EIA indicates less than half the refinery fuel use as indicated by refinery permit data.

forest quality; and frequency, duration, and location of extreme weather events. Within the CFO itself, there may be local variations.

Climate change also is likely to exacerbate the effects of natural and altered disturbance regimes, including wildfire, insect outbreaks, flooding, and erosion, across all New Mexico's habitat types and may prompt abrupt ecological changes. This is particularly true in ecosystems such as grasslands, riparian areas, and forests where the effects of past management and land use change are substantial (McCarty, 2008).

Most of the CFO is desert and semi-desert shrub and grassland, and these regions may be best adapted for higher temperatures and less rainfall (Price et al. 2005). However, they are still subject to potentially serious climate change impacts, made worse by the large amount of human development and disturbance that has already occurred. Grasslands are affected by two known climate change effects, changes in the timing of precipitation (from summer- to winter-dominated rainfall) and increased CO_2 concentrations (Brown et al. 1997, Morgan et al. 2007). Not only do these factors favor the encroachment of woody shrubs and loss of perennial grass cover, but they may act synergistically with human-linked land use changes in grasslands and elsewhere (Hansen et al. 2002, Peters et al. 2004, Burkett et al. 2005, Jetz et al. 2007, Enquist & Gori in press). In addition, increasingly high temperatures produce greater evaporative demands on soils, plants, streams, rivers, and reservoirs in every season (McCarty, 2008).

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales due to their differences in global warming potential (described above) and life spans in the atmosphere.

New Mexico's gross GHG emissions have increased steadily from the year 2000, reaching 89 $MMtCO_2e$ in 2010, or 8 percent above year 2000 levels. The increase between 2000 and 2010 is less than New Mexico's 21 percent increase in GHG emissions between 1990 and 2000 (NMED, 2006).

Emissions from oil and gas production have been declining nationally. The EPA reports that emissions from Natural Gas Systems in 2008 have decreased from 1990 levels by 26 percent for NH4 and by 20 percent for CO_2. This decrease is attributed to improved management practices, technology, and replacement of older equipment. (Hoadley, 2010 and EPA, 2010).

Although greenhouse gas emissions from the oil and gas industry have decreased nationally, in New Mexico they have increased slightly since 1990. This is consistent with rapid increases in gas production through the mid-1990s followed by a slow decline. Statewide oil production has shown a steady decline since the mid 1980s (Hoadley, 2010 and NM OCD, 2010).

By 2020, GHG emissions are expected to climb 14 precent over 2010 levels to 102 $MMtCO_2e$, a total increase of 23 percent above year 2000 levels (NMED, 2006).

Cultural Resources
Federal laws and regulations protect cultural resources on public lands, including archaeological sites and historic properties. Development activities must comply with these protective regulations, and BLM requires the completion of cultural resource inventories prior to surface disturbing activities. These inventories identify sites potentially eligible for inclusion in the National Register of Historic Places, sites on which the BLM has required past exploration and development activities to avoid.
Because Class III cultural resource inventories must be completed, the potential for increased impacts on cultural artifacts will be minimized. By avoiding known cultural and historical sites during the layout of drill sites, access roads, pipeline corridors, and other realty actions, the potential for incremental increases in cumulative impacts will be avoided.

Completion of cultural resource inventories would have a beneficial, cumulative impact on the level of cultural information about the proposed lease area. Some unintentional damage to subsurface resources could occur during grading or excavation activities. Newly built roads could open previously inaccessible areas to illegal collection or vandalism of archaeological resources; however, implementation of resource protection and mitigation would protect such resources upon discovery.

Noxious Weeds
Cumulative adverse effects to resource values because of noxious weeds would be dependent on the amount of surface disturbance within lease parcel boundary during the well production phase of the lease. Increasing the amount of disturbed ground increases the risk of noxious weed invasion and spread.

Wildlife
The cumulative adverse effects of full development of oil and gas resources in the proposed lease area could result in a decrease in wildlife populations. Development operations could reduce or eliminate habitat for some species.

Range
Adverse cumulative effects would include reduced acreages for grazing purposes or other detriments, such as increased risk of weed encroachment onto rangelands caused by increased road traffic (seed dispersion), which would reduce desirable vegetation species and, as a result, reduce stocking rates.

6.0 Consultation/Coordination

This section includes individuals or organizations from the public and its' users, the interdisciplinary team, and permittees that were contacted during the development of this document.

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Frank Paiz	Governor	Ysleta del Sur Pueblo

On 06 May 2011 a briefing for the BLM NM State Director was held at the New Mexico State Office to review Field Office recommendations for nominated parcels.

6.1 Public Involvement

The parcels nominated for this sale, along with the appropriate stipulations from the RMP, were posted online for a two week review period, April 25, 2011 through May 9, 2011. No comments were received. This EA was made available for public review and comment for 30 days beginning May 26, 2011. No comments were received.

7.0 References

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8.0 Authorities

Code of Federal Regulations (CFR) 3100
40 CFR All Parts and Sections inclusive Protection of Environment, Revised as of July 1, 2001.

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

OCTOBER 19, 2011 DRAFT SALE NOTICE - CARLSBAD

NM-201110-001 640.000 Acres
T.0230S, R.0230E, NM PM, NM
Sec. 004 ALL;
Eddy County
Carlsbad FO
NMNM 97851, NMNM 98796
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-21 Caves and Karst
SENM-S-39 Plan of Development

NM-201110-002 122.800 Acres
T.0230S, R.0230E, NM PM, NM
Sec. 019 LOTS 4;
019 E2SW;
Eddy County
Carlsbad FO
NMNM 88236
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-21 Caves and Karst
SENM-S-39 Plan of Development

NM-201110-003 440.000 Acres
T.0180S, R.0240E, NM PM, NM
Sec. 033 NWNW,S2NW,S2;
Eddy County
Carlsbad FO
NMNM 28864
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-16 Raptor Nests and Heronries
SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-21 Caves and Karst
SENM-S-31 Northern Aplomado Falcon

Defer from leasing due to the Permian Basin Candidate Habitat Exchange with the State of New Mexico.

NM-201110-004 637.600 Acres
T.0190S, R.0240E, NM PM, NM
Sec. 031 LOTS 1-4;
031 E2,E2W2;
Eddy County
Carlsbad FO
NMNM 76936
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-19 Playas and Alkali Lakes Playa
SENM-S-21 Caves and Karst
SENM-S-31 Northern Aplomado Falcon
Defer from leasing due to the Permian Basin Candidate Habitat Exchange with the State of New Mexico.

NM-201110-005 640.000 Acres
T.0190S, R.0240E, NM PM, NM
Sec. 033 ALL;
Eddy County
Carlsbad FO
NMNM 39949, NMNM 76936
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-19 Playas and Alkali Lakes Playa
SENM-S-21 Caves and Karst
SENM-S-31 Northern Aplomado Falcon
Defer from leasing due to the Permian Basin Candidate Habitat Exchange with the State of New Mexico.

NM-201110-006 400.000 Acres
T.0220S, R.0240E, NM PM, NM
Sec. 025 W2,W2SE;
Eddy County
Carlsbad FO
NMNM 89803, NMNM 92152
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource
SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-17 Slopes or Fragile Soils
Steep slopes
SENM-S-18 Streams, Rivers, and Floodplains
Floodplain
SENM-S-21 Caves and Karst
SENM-S-25 Visual Resource Management
McKittrick Hills SMA -Closed to Future Leasing

NM-201110-007 517.280 Acres
T.0250S, R.0250E, NM PM, NM
Sec. 030 LOTS 3-4;
030 E2,SENW,E2SW;
Eddy County
Carlsbad FO
NMNM 94836, NMNM 101088
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource

SENM-LN-1 Cave - Karst Occurrence Area
SENM-S-17 Slopes or Fragile Soils
Fragile soils - Gypsum
SENM-S-20 Springs, Seeps and Tanks
SENM-S-21 Caves and Karst
SENM-S-25 Visual Resource Management
SENM-S-32 VRM-Class III Guadalupe Escarpment
SENM-S-39 Plan of Development

SENM-S-42 Southern Guadalupe Escarpment Resources

Parcel is located within nominated ACEC area. Defer until we can determine the relevance and importance criteria.

NM-201110-009 393.150 Acres
T.0160S, R.0300E, NM PM, NM
Sec. 030 LOTS 3,4;
030 E2SW,SE;
031 N2NE;
Eddy County
Carlsbad FO
NMNM 105214
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-S-16 Raptor Nests and Heronries
SENM-S-19 Playas and Alkali Lakes Playa
SENM-S-22 Prairie Chickens
SENM-S-47 Lease Reclamation

NM-201110-010 80.050 Acres
T.0180S, R.0320E, NM PM, NM
Sec. 006 LOTS 1;
006 SENE;
Lea County
Carlsbad FO
NMNM 90900
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-2 Protection of the Sand Dune Lizard
SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
SENM-S-23 Sand Dune Lizard
SENM-S-33 NSO-LPC-SDL Habitat
SENM-S-39 Plan of Development
SENM-S-46 SDL/POD
Defer parcel until Sand Dune Lizard habitat evaluation can be completed. .

NM-201110-011 160.000 Acres
T.0180S, R.0320E, NM PM, NM
Sec. 026 SE;
Lea County
Carlsbad FO
NMLC 065128
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-2 Protection of the Sand Dune Lizard
SENM-S-17 Slopes or Fragile Soils
SENM-S-22 Prairie Chickens
SENM-S-23 Sand Dune Lizard
SENM-S-39 Plan of Development

Defer parcel due to QP-C - Habitat Evaluation Area (HEA). CFO is currently in the process of converting the HEA into a Habitat Area (HA) and developing an Environmental Assessment (EA). This is consistent with the Special Status Species 2008 RMPA.

NM-201110-012 40.000 Acres
T.0180S, R.0320E, NM PM, NM
Sec. 035 SWSW;
Lea County
Carlsbad FO
NMNM 90536
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-2 Protection of the Sand Dune Lizard
SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
SENM-S-23 Sand Dune Lizard
SENM-S-33 NSO-LPC-SDL Habitat
SENM-S-39 Plan of Development
SENM-S-46 SDL/POD

Defer parcel due to QP-C - Habitat Evaluation Area (HEA). CFO is currently in the process of converting the HEA into an Habitat Area (HA) and developing an Environmental Assessment (EA). This is consistent with the Special Status Species 2008 RMPA.

NM-201110-013 1179.440 Acres
T.0230S, R.0330E, NM PM, NM
Sec. 006 LOTS 1-7;
006 S2NE,SENW,E2SW,SE;
007 LOTS 1-4;
007 NE,E2W2,S2SE;
Lea County
Carlsbad FO
NMNM 10472
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource

SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
SENM-S-47 Lease Reclamation

Defer parcel due to being located adjacent to the Paduca - Habitat Evaluation Area (HEA). Defer parcel due to expansion of the (HEA) to cover habitat located within the parcel.

NM-201110-014 160.000 Acres
T.0190S, R.0340E, NM PM, NM
Sec. 014 SE;
Lea County
Carlsbad FO
NMNM 0483079
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-LN-2 Protection of the Sand Dune Lizard
SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
SENM-S-23 Sand Dune Lizard
SENM-S-33 NSO-LPC-SDL Habitat
SENM-S-34 Zone 3 - POD
Parcel is located within the Pearl – HEA. Need to defer the parcel until the Habitat evaluation area can be completed.

NM-201110-015 320.440 Acres
T.0230S, R.0340E, NM PM, NM
Sec. 001 LOTS 1-4;
001 S2N2;
Lea County
Carlsbad FO
NMNM 56403, NMNM 62232, NMNM 98199
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
SENM-S-34 Zone 3 - POD

NM-201110-016 1268.240 Acres
T.0230S, R.0360E, NM PM, NM
Sec. 019 LOTS 1-4;
019 E2;E2W2;
030 LOTS 1-4;
030 E2,E2W2;
Lea County
Carlsbad FO
NMNM 97159, NMNM 97911
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource

SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
SENM-S-34 Zone 3 - POD
SENM-S-47 Lease Reclamation

Defer parcel due to San Simon – Habitat Evaluation Area (HEA). CFO is currently in the process of converting the HEA into an Habitat Area (HA) and developing an Environmental Assessment (EA). This is consistent with the Special Status Species 2008 RMPA.

NM-201110-017 2443.450 Acres
T.0250S, R.0360E, NM PM, NM
Sec. 004 LOTS 3,4;
004 S2NW,S2;
005 LOTS 1-4;
005 S2N2,S2;
006 LOTS 7;
006 E2SW,SE;
007 LOTS 1,2;
007 NE,E2NW,N2SE;
009 ALL;
Lea County
Carlsbad FO
NMNM 053646A, NMNM 101613
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource

SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-20 Springs, Seeps and Tanks
Earthen reservoir
SENM-S-22 Prairie Chickens
SENM-S-34 Zone 3 - POD

NM-201110-018 319.640 Acres
T.0250S, R.0360E, NM PM, NM
Sec. 007 LOTS 3,4;
007 E2SW;
018 LOTS 1,2;
018 E2NW;
Lea County
Carlsbad FO
NMNM 101613
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource

SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-22 Prairie Chickens

NM-201110-019 360.000 Acres
T.0250S, R.0360E, NM PM, NM
Sec. 019 E2;
020 NWNW;
Lea County
Carlsbad FO
NMNM 03429, NMNM 96258, NMNM 101614
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-S-22 Prairie Chickens
Windmill

NM-201110-020 160.000 Acres
T.0250S, R.0360E, NM PM, NM
Sec. 028 SE;
Lea County
Carlsbad FO
NMNM 99053, NMNM 101614
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource
SENM-S-18 Streams, Rivers, and Floodplains
SENM-S-22 Prairie Chickens

Defer from leasing due to the Permian Basin Candidate Habitat Exchange with the State of New Mexico.

NM-201110-021 160.170 Acres
T.0250S, R.0360E, NM PM, NM
Sec. 030 LOTS 3,4;
030 E2SW;
Lea County
Carlsbad FO
NMNM 101614
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource

SENM-S-22 Prairie Chickens

NM-201110-022 320.000 Acres
T.0250S, R.0360E, NM PM, NM
Sec. 033 S2;
Lea County
Carlsbad FO
NMNM 101614
Formerly Lease No.
Stipulations:

NM-11-LN Special Cultural Resource
SENM-S-18 Streams, Rivers, and Floodplains

SENM-S-22 Prairie Chickens
Windmill
Defer from leasing due to the Permian Basin Candidate Habitat Exchange with the State of New Mexico.

NM-201110-023 160.000 Acres
T.0260S, R.0360E, NM PM, NM
Sec. 013 W2E2;
Lea County
Carlsbad FO
NMNM 101617
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-S-22 Prairie Chickens

NM-201110-024 160.000 Acres
T.0260S, R.0360E, NM PM, NM
Sec. 024 W2W2;
Lea County
Carlsbad FO
NMNM 101617
Formerly Lease No.
Stipulations:
NM-11-LN Special Cultural Resource

SENM-S-17 Slopes or Fragile Soils
Fragile soils - open dunes
SENM-S-22 Prairie Chickens
Defer from leasing due to the Permian Basin Candidate Habitat Exchange with the State of New Mexico.