

U.S. Department of the Interior

Bureau of Land Management

Decision Record
Finding of No Significant Impact
Environmental Assessment
DOI-BLM-NM-040-2013-03-EA
April, 2013

April 2013 Competitive Oil and Gas Lease Sale

Houston County, Texas

U.S. Department of the Interior
Bureau of Land Management
Oklahoma Field Office
7906 E. 33rd Street
Tulsa, Oklahoma 74145
Phone: 918.621.4100
Fax: 918.621.4130



**DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
OKLAHOMA FIELD OFFICE**

Project: April 2013 Competitive Oil and Gas Lease Sale

EA Log Number: DOI-BLM-NM-040-2013-03-EA

Location: Houston County, Texas.

Finding of No Significant Impact

Based on the analysis of potential environmental impacts contained in the attached Environmental Assessment (EA), I have determined the Proposed Action Alternative is not expected to have significant impacts on the environment.

The impacts of leasing the fluid minerals estate in the areas described with this EA have been previously analyzed in the Texas Resource Management Plan (RMP), 1996, as amended and the lease stipulations that accompany the tracts proposed for leasing would mitigate the impacts of future development on these tracts. Therefore, preparation of an Environmental Impact Statement (EIS) is not warranted.

Prepared by:

Melinda Fisher
Natural Resource Specialist

Date:_____

Reviewed by:

Stephen G. Tryon
Field Manager, Oklahoma Field Office

Date:_____

Approved by:

Jesse Juen
State Director, New Mexico

Date:_____

**Department of the Interior
Bureau of Land Management
Oklahoma Field Office**

**Environmental Assessment
April 2013 Competitive Oil and Gas Lease Sale
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1.0 Introduction

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920 (MLA), as amended [30 U.S.C. 181 *et seq.*], and the Federal Land Policy and Management 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 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 land 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 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 of which potential bidders should be made aware. The parcels nominated for this sale, along with the appropriate stipulations from the Resource Management Plan (RMP), the Davy Crocket National Forest, and the LBJ Grasslands are posted online for a two week public scoping period. Comments received are reviewed and incorporated into the environmental assessment (EA).

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 online to the public through the 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 review of the 29 parcels nominated for the April 2013 Competitive Oil and Gas Lease Sale. Twenty eight (28) of the 29 parcels are located on surface estate administered by the Davy

Crocket National Forest and LBJ Grasslands and Federal mineral estate administered by the Oklahoma Field Office (OFO). It serves to verify conformance with the approved land use plan as well as demonstrates the effectiveness of attaching the lease stipulations to specific parcels. Where the surface is administered by the Forest Service and the mineral estate is also federally owned, the Forest Service and BLM share the responsibility for enforcing mineral leasing policies and regulations. Forest Service regulations under 36 CFR 228.102(e) allow the agency to authorize the BLM to lease individual, specified areas of land administratively available for lease and include the stipulations determined to be necessary.

The BLM issues and administers oil and gas leases on Forest Service lands only after the Forest Service authorizes leasing for specific lands. Once a Federal lease is issued on Forest Service lands, the Forest Service has the full responsibility and authority to approve and regulate all surface disturbing activities associated with oil and gas exploration and development through analysis and approval of the surface use plan of operation (SUPO) component of an Application for Permit to Drill (APD). The BLM has the authority and responsibility to provide final approval of all APDs including those for operations on Federal leases on Forest Service lands. Each APD includes a SUPO and a drilling plan. The BLM has the authority and responsibility to regulate all downhole operations and directly related surface activities and use, and provide approval of the drilling plan and final approval of the APD on Forest Service lands (USDA/USDI 2006).

The parcels and applicable stipulations were posted online for a two-week public scoping period beginning on October 29, 2012. No comments were received. In addition, this EA is made available for public review and comment for 30 days beginning on December 3, 2012. No comments were received..

1.1 Purpose and Need

The purpose is to provide 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 for the action is established by the BLM's responsibility under the MLA, as amended, to promote the exploration and 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 *et 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.

1.2 Land Use Plan Conformance

The applicable land use plan for this action is the Texas Resources Management Plan (RMP) (May 1996), as amended and Final Environmental Impact Statement (FEIS) (February 1996), as amended. The RMP, as amended, described specific split estate tracts in Texas and the stipulations that would be attached to each tract if they were offered for lease. These stipulations which include seasonal timing limitations

and other controlled surface use stipulations were designed to minimize or alleviate potential impacts to special resource values. Since the parcels under consideration falls within this area and the applicable stipulations identified in the RMP would be attached to the parcels, if leased, leasing the parcels would be in conformance with the Texas RMP. Leasing the parcels would also be consistent with the RMPs goals and objectives for natural and cultural resources.

Pursuant to 40 CFR 1508.28 and 1502.21, this EA is tiered to and incorporates by reference the information and analysis contained in the RMP (1996), as amended. 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 potential well densities listed in the Reasonable Foreseeable Development (RFD) Scenario included in the RMP. 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 RFD scenario may be used in the analysis of impacts in this EA.

FLPMA established guidelines to provide for 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 US, 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 1601.009 and 1621-1).

1.3 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.

OFO biologists reviewed the proposed action and determined it would be in compliance with threatened and endangered species management and consultation guidelines outlined in the Texas RMP biological assessments (BA). No further consultation with US Fish and Wildlife (USFWS) is required at this leasing stage.

Compliance with National Historic Preservation Act (NHPA) Section 106 responsibilities are adhered to by following the BLM Manual 8100, 36 CFR Part 800, 43 CFR Part 7, and the Cultural Resources Handbook H-8100-1 (for New Mexico, Oklahoma, Kansas, and Texas). When draft parcels locations are received by the OFO, cultural resource staff reviews the location for any known cultural resources on BLM records.

Tribal consultations would be completed when specific locations for proposed projects are received, reviewed by the State Historic Preservation Office (SHPO), the Bureau of Indian Affairs (BIA), and specific Tribes. When particular Tribes respond during consultation, that tribe would be directly involved in negotiations with the BLM to determine if the project should be moved, or other mitigation required.

In Section 1835 of the Energy Policy Act of 2005 (43 USC 1508), 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 privately owned surface. The Split Estate Report, submitted in December 2006, documents the findings resulting from consultation on the split estate issue with affected private surface owners, the oil and gas industry, and other interested parties.

NMSO contacts the surface owners and notifies 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 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.

1.4 Identification of Issues

An internal review of the Proposed Action was conducted by an interdisciplinary team of OFO resource specialists on October 16, 2012, to identify and consider potentially affected resources and associated issues. During the meeting, the interdisciplinary team also identified and subsequently addressed any unresolved issues or conflicts related to the Proposed Action.

The parcels included the Proposed Action, along with the appropriate stipulations from the RMP and the Davy Crockett National Forest and the LBJ Grasslands, were posted online at http://www.blm.gov/nm/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html for a two-week public scoping period beginning October 29, 2012. No comments were received.

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

Air Quality

- What effect will the proposed action have on atmospheric pollutants and contaminants?

Climate

- What effect will the proposed action have on climate change?

Cultural Resources

- What effect will the proposed action have on known and newly discovered artifacts of cultural, archeological, or Native American religious significance?

Floodplains

- What effect will the proposed action have on floodplains and the integrity of the floodplains?

Invasive Species

- What effect will the proposed action have on the spread of non-native species?

Threatened and Endangered Species

- What effect will the proposed action have on federally listed and state-listed species that have the potential to be located on the proposed lease tracts?

Hazard Waste

- What effect will the proposed action have on the management of fluid mineral drilling and the hazardous wastes produced?

Water Quality

- What effect will the proposed action have on water quality in stream systems?

Wetland and Riparian Areas

- What effect will the proposed action have on wetland and riparian areas?

Farmlands, Prime or Unique

- What effect will the proposed action have on prime or unique farmlands?

Mineral Resources

- What effect will the proposed action have on locatable minerals management?

Watersheds

- What effect will the proposed action have on the watershed condition?

Vegetation

- What effect will the proposed action have on vegetation?

Special Status Species/Threatened and Endangered Species

- What effect will the proposed action have on special status species?

Wildlife/Migratory Birds

- What effect will the proposed action have on wildlife and their habitat in general?

Several issues were considered during project scoping but dismissed from detailed analysis because there would be no potentially significant effects related to the issues resulting from any of the alternatives presented below. The following elements are determined by an interdisciplinary team of resource specialists, following their onsite visit and review of the Texas RMP (1996), as amended, and other data sources, to not be present: Areas of Critical Environmental Concern, Caves and Karsts, Livestock Grazing, Native American Religious Concerns, Rights of Way, Recreation, Public Health, Visual Resources, Wild and Scenic Rivers, Wilderness or Wilderness Study Areas, Wild Horses and Burros.

2.0 Proposed Action and Alternatives

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 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 twenty nine (29) parcels would not be offered for lease during the April 2013 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 selection of the no action alternative would not prevent these parcels from being nominated in a future lease sale.

2.2 Alternative B—Proposed Action

The proposed Action would be to lease one (1) nominated parcel of federal minerals covering 89.0 acres administered by OFO and 28 parcels of federal minerals administered by the United States Forest Service (USFS). The one (1) proposed lease parcel is located on private surface in Houston County, Texas. The 28 lease parcels on USFS are in Houston, Trinity, and Wise Counties. Standard terms and conditions as well as stipulations listed in the Texas RMP (1996), as amended, would apply. A complete description of these parcels, including any stipulations, is provided in Table 1.

A lease notice, WO-ESA-7, would also be attached to each parcel. This notice would notify the lease holder that the BLM reserves direction to modify, if necessary, any action proposed on the lease to ensure threatened, endangered, or other special status species, or their habitats would not be adversely affected. Under the Endangered Species Act (ESA) of 1973, as amended, Section 7 Consultation with the USFWS would occur if development is proposed on a lease containing habitat suitable for these special status species.

Once sold, the lease purchaser would have the exclusive 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, exclusive right to develop the leasehold reverts back to the federal government and the lease can be reoffered in another lease sale.

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

Standard terms and conditions, stipulations listed in the Texas 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.

Table 1: Alternative B—Proposed Action Parcels

Parcel	Comments	Acres
<u>NM-201304-085</u> TX TRACT K-1J Houston County, TX	<u>Private Surface:</u> Lease with the following Stipulations: ORA-2:Wetland/Riparian Protection WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation	89.000
<u>NM-201304-072</u> TX TRACT K-1-III Parcel #1 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest Lease with the following Stipulations: FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) LN-3B: Mt. Olive Church & Cemetery	2408.920
<u>NM-201304-073</u> TX TRACT K-1-III Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest Lease with the following Stipulations: FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	1374.380
<u>NM-201304-074</u> TX TRACT K-1-III Parcel #3 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest Lease with the following Stipulations: FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2468.280
<u>NM-201304-075</u> TX TRACT K-1-III Parcel #5 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest Lease with the following Stipulations: FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Nesting	1387.950

Parcel	Comments	Acres
<u>NM-201304-076</u> TX TRACT K-1-V Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Nesting	1571.590
<u>NM-201304-077</u> TX TRACT K-1A-VI Parcel #1 Houston and Trinity Counties, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2504.410
<u>NM-201304-078</u> TX TRACT K-1A-VI Parcel #2 Houston and Trinity Counties, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	1559.220
<u>NM-201304-079</u> TX TRACT K-1B-III Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2398.710
<u>NM-201304-080</u> TX TRACT K-1B-III Parcel #3 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	374.350
<u>NM-201304-081</u> TX TRACT K-1B-V Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2430.670

Parcel	Comments	Acres
<u>NM-201304-082</u> TX TRACT K-1G Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	477.000
<u>NM-201304-083</u> TX TRACT K-1H Parcel #1 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	388.870
<u>NM-201304-084</u> TX TRACT K-1I Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	292.000
<u>NM-201304-086</u> TX TRACT K-1J-I Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	84.000
<u>NM-201304-087</u> TX TRACT K-2Y Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Nesting	95.000
<u>NM-201304-088</u> TX TRACT K-2AA Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails	410.000

Parcel	Comments	Acres
<u>NM-201304-089</u> TX TRACT K-21 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	72.000
<u>NM-201304-090</u> TX TRACT K-31 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	60.000
<u>NM-201304-091</u> TX TRACT K-54 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	30.000
<u>NM-201304-092</u> TX TRACT K-1-III Parcel #4A and 4B Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	1263.270
<u>NM-201304-093</u> TX TRACT K-1B-V Parcel #3 K-43 K-1B-XIV Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) CSU-1H (TR K-1B-V Parcel #3): TX Natural Heritage Program Sensitive Plant & Community Protection	2515.230
<u>NM-201304-094</u> TX TRACT 62 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	82.590

Parcel	Comments	Acres
<u>NM-201304-095</u> TX TRACT 143 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1C: Drilling Restriction within 150' of Horse Trails FS8 (TX) CSU-1K: Flood Prevention & Erosion Control NM10: Drainage	77.010
<u>NM-201304-096</u> TX TRACT 301 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	81.200
<u>NM-201304-097</u> TX TRACT 380 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1C: Drilling Restriction within 150' of Horse Trails FS8 (TX) CSU-1K: Flood Prevention & Erosion Control NM10: Drainage	156.850
<u>NM-201304-098</u> TX TRACT 390-27 Parcel # 4 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	212.250
<u>NM-201304-099</u> TX TRACT 728 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	94.00
<u>NM-201304-100</u> TX TRACT 421 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1C: Drilling Restriction within 150' of Horse Trails FS8 (TX) CSU-1K: Flood Prevention & Erosion Control NM10: Drainage	160.000

3.0 Description of Affected Environment

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

The one proposed lease parcel on private land will be analyzed in detail in this EA. The United States Department of Agriculture Davy Crocket National Forest and the LBJ Grasslands analyzed the environmental effects associated with leasing all 28 Forest Service surface parcels identified in this document. After a review conducted by the OFO staff in the fall of 2012, the OFO concluded that there have not been any changed circumstances that would render the analysis invalid. Hence, the following resource analysis tiers to and incorporates by reference the information and analysis contained in the U.S. Forest Service EIS.

The proposed lease parcel is within Houston County, TX. Houston County is in the east-central part of Texas. It lies about 140 miles north of the Gulf of Mexico and about 80 miles west of the Louisiana State line. It consists of 787,978 acres of land and 1,664 acres of water. The Neches River forms the eastern boundary, which separates the county from Angelina and Cherokee Counties. The Trinity River forms the western boundary, which separates the county from Leon and Madison Counties. It is bordered by Anderson County on the north and Trinity and Walker Counties on the South.

3.1 Air Resources

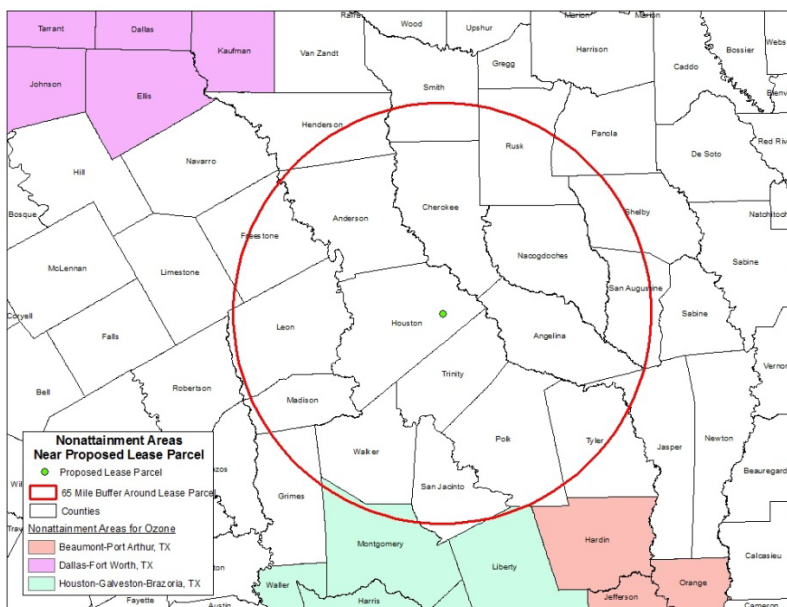
Air quality and climate are components of air resources which may be affected by BLM applications, activities, and resource management. Therefore, the BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as part of the planning and decision making process. Much of the information referenced in this section is incorporated from the Air Quality Technical Report for BLM Oil and Gas Development in New Mexico, Kansas, Oklahoma, and Texas (herein referred to as Air Quality Technical Report). This document summarizes the technical information related to air resources and climate change associated with oil and gas development.

3.1.1 Air Quality

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality nationwide, including six “criteria” air pollutants. These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ & PM_{2.5}), sulfur dioxide (SO₂), and lead (Pb). EPA has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The NAAQS are protective of human health and the environment. EPA has approved Texas’ State Implementation Plan and the state enforces state and federal air quality regulations on all public and private lands within the state, except for tribal lands. The area of analysis is considered a Class II air quality area by the EPA. There are three classifications of areas that attain national ambient air quality standards, Class I, Class II and Class III. Congress established certain national parks and wilderness areas as mandatory Class I areas where only a small amount of air quality degradation is allowed. All other

areas of the US are designated as Class II, which allow a moderate amount of air quality degradation. No areas of the US have been designated Class III, which would allow more air quality degradation. 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.

The parcel is within 60 miles of the Houston-Galveston-Brazoria, TX “non-attainment” area for O₃, 66 miles of the Beaumont-Port Arthur, TX “non-attainment” area, and about 86 miles from the Dallas-Ft.Worth, TX “non-attainment” area.



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 Concentrations

There is no data available for SO₂, lead and CO. Lead and CO concentrations would not be elevated in rural areas, so there is no monitoring conducted for these pollutants. “Design Concentrations” are the concentrations of air pollution at a specific monitoring site that can be compared to the NAAQS. The 2011 design concentrations of criteria pollutants are listed below.

Figure 1. 2011 Design Concentrations of Criteria pollutants (EPA, 2012)

Pollutant	Design Value	Averaging period	NAAQS
O ₃	0.074 ppm	8-hour	0.075 ppm ¹
PM _{2.5}	12.4 µg/m ³	Annual	12.0 µg/m ^{3,2}
PM _{2.5}	24 µg/m ³	24-hour	35 µg/m ^{3,3}
NO ₂	5 ppb	Annual	53 ppb
NO ₂	58 ppb	1-hour	100 ppb ³

¹ Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

² Annual mean, averaged over 3 years

³ 98th percentile, averaged over 3 years

Mean AQI values for the area of the proposed lease were generally in the good range (AQI<50) in 2011. 76% of the days in 2011 were classified as “good”, 21% were classified as “moderate”, and 8 days were classified as “unhealthy for sensitive groups”. The median AQI was 39 or “good” and the maximum AQI was 140. The air quality index in the area annually reaches “unhealthy for sensitive groups” on a number of days each year. Over the past decade, there appears to be a trend toward improved air quality, with no “very unhealthy” and “unhealthy” in the past six years. From 2002 through 2006, there were 1-2 “unhealthy” and “very unhealthy” days each year except for 2005. Recent years’ improvement in the air quality index may be due to reduced air pollution resulting from local, state and national regulations aimed at reducing ozone and particulate matter concentrations. This data is shown in Figure 3 (EPA, 2012a). Years not included in the table had no days classified as “unhealthy for sensitive groups”.

Figure 1. Number of Days classified as “unhealthy for sensitive groups” or worse (EPA, 2012a)

	2002	2003	2004	2005	2006	2007	2008	2010	2011
Lease Area	7*	12**	5***	15	12*	7	3	4	8

* Includes 2 days of “unhealthy”

** Includes 1 day of “unhealthy” and 2 days of “very unhealthy”

*** Includes 1 day of “unhealthy”

3.1.2 Climate

Houston County is hot in the summer but cool in the winter when an occasional surge of cold air cause a sharp drop in otherwise mild temperatures. Rainfall is uniformly distributed throughout the year, reaching a slight peak in the spring. Snowfall is infrequent. Annual total precipitation is normally adequate for cotton, feed grains, and small grains.

The proposed lease parcel is within the subtropical humid region of Texas. This region is most noted for warm and humid summers. Table 2 summarizes components unique of climate that could affect air quality in the region.

Table 2. Summary of climate components that could affect air quality in the region.

Climate Component	
Mean maximum summer temperatures	92.7°F
Mean minimum winter temperatures	38.4°F
Mean annual temperature	66.3°F
Total annual precipitation	45.18 inches
Total annual snowfall	0.4 inches
Mean annual wind speed	13 mph
Prevailing Wind Direction	South

In addition to the air quality information in the Texas 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.

GHGs that are included in the US GHG Inventory are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). CO₂ and CH₄ are typically emitted from combustion activities or are directly emitted into the atmosphere. On-going scientific research has identified the potential impacts of GHG emissions (including CO₂; CH₄, N₂O; and several trace gases) on global climate. Through complex interactions on regional and global scales, these GHG emissions cause a net warming effect of the atmosphere (which make surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO₂ concentrations to increase dramatically, and are likely to contribute to overall climatic changes. Increasing CO₂ concentrations may 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°C to 5.8°C (2.5°F 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 increase in daily minimum temperatures are 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 proposed lease parcel and subsequent actions of oil and gas development.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, “federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses.”

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially CO₂ and CH₄) 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 span of the atmosphere.

3.2 Soils

The varied climate and topography of Texas have combined to produce broad differences in state soils. In the eastern part of the state, soils have been developed where leaching is intense and conditions are humid. These conditions produce soils low in phosphorous and potassium, while at the same time being moderately to strongly acidic. In Houston County, the soils formed under forest vegetation in a humid environment. Most soils are light colored and medium to low in natural fertility.

The Natural Resource Conservation Service (NRCS) has surveyed the soils in the proposed parcel area. The soil map units represented in the project area are in Table 3. The predominate soil type, Kurth fine sandy loam, in the proposed lease parcel is found on slightly convex to smooth, gently sloping to moderately sloping interstream divides. They formed in loamy coastal plain sediments mainly of the Yegua geological formation, but also on the Whitset formation. The soil is used mainly for woodland and improved pasture.

Table 3. Web soil survey results of soil types found within the proposed parcel.

Parcel	Soils			
	Soil Name	Description	Acres in area	% in area
NM-2013-04-085 TX TRACT K-1J	Kurth fine sandy loam (1-3% slope; 5-8% slope)	Moderately well drained; loamy marine deposits over mudstone	1-3% = 62.7 5-8% = 25.6	1-3% = 71.0 5-8% = 29.0

Houston County		parent material; >80" to water table; moderate water capacity; no frequency of flooding or ponding.		
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The NRCS has also assigned a wind erodibility index value to each soil type. The value indicates the susceptibility of soil to wind erosion, or the tons per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion. The Kurth fine sandy loam soil types have a rating of 86 tons per acre per year indicating higher susceptibility to wind erosion.

3.3 Water Resources

3.3.1 Surface water

Texas' abundant surface water resources include rivers, streams and both natural and man-made reservoirs. There are 23 surface water basins in Texas, including 15 major river basins and eight coastal basins, each with varying hydrological regimes and abilities to provide water supplies. The state's water availability models estimate that available surface water during drought is 13.3 million acre-feet in 2010. Of this amount, only 9.0 million acre-feet can be used as existing supply due to physical and legal constraints. Existing surface water supply is project to decrease to 8.4 million acre-feet by 2060, primarily from sedimentation of existing reservoirs.

Houston County Lake, in the west-central part of the county, provides water for the cities Crockett and Grapeland, as well as fishing and recreational activities. The Trinity, Neches River, and numerous smaller streams, creeks, farm ponds, and lakes provide abundant water supplies for the county. Approximately the western two-thirds of Houston County is drained by the Trinity River and its tributaries and the eastern one-third is drained by the Neches River. In the northern part of the county, most of the streams are perennial and have developed a trellis-type drainage pattern, whereas in the southern part of the county, most of the streams are intermittent and have developed a dendritic drainage pattern.

The proposed lease parcel is within the Neches River Basin. The Neches River Basin is the third largest river basin whose watershed is entirely within Texas and the fourth largest by average flow volume. The Neches River flows from headwaters in Van Zandt County to its confluence with Sabine Lake, which drains to the Gulf of Mexico. The basin is an important source of surface water supply for growing cities outside the basin.

The proposed lease parcel lies within the Middle Neches (USGS 12020002) watershed. Within the watershed 62.8 miles of rivers and streams are impaired from bacteria, 41.3 miles from dissolved oxygen, and 92.2 from mercury in fish tissue. Approximately 49.4 acres of lakes, reservoirs, and ponds are impaired from mercury in fish tissue. The closest impaired water to the proposed lease parcel is approximately 20 miles southeast in the neighboring Angelina County.

The South Fork Cochino Bayou is less than 0.5 miles from the proposed lease parcel. Approximately 0.45 miles of an unnamed tributary of the South Fork Cochino Bayou runs through the southeastern half of the proposed lease parcel, while a second unnamed tributary is within 0.25 miles of the parcel.

3.3.2 Groundwater

Groundwater deposits underlie about 76 percent of Texas and it is considered to be one of the state's most valuable resources. Sixty percent of the freshwater used in Texas is supplied from 23 major aquifers. Groundwater supplies are produced from numerous saturated geologic formations comprised of various mineralogic types such as sand and gravel alluviums and cavernous limestones and dolomites.

The source of all groundwater in Houston County is precipitation. Most of the recharge occurs as rainfall on the outcrops of the water-bearing formations, although lesser amounts of recharge probably result from seepage from streams that cross the outcrop areas. The water that enters the formations moves generally down the dip of the water-bearing beds into the artesian sections of the aquifers. Several factors affect recharge including: the intensity and amount of rainfall, the slope of the land surface, the type of soil, the permeability of the aquifer, the rate of evapotranspiration, and the quantity of water in the aquifer (USGS 1966)

The major aquifer underling the proposed lease parcel is the Carrizo aquifer, which can produce 500-3,000 gallons per minute (gpm). The aquifer extends across much of eastern Texas and cross 66 counties. The aquifer contains water under artesian pressure. Under artesian conditions, the water is confined under hydrostatic pressure in the sands between relatively impermeable beds, and where the elevation of the land surface at a well is considerably below the general level of the area of outcrop. Pumpage for irrigation accounts for just over half the water pumped, and pumping for municipal supply accounts for another 40 percent. The groundwater, although hard, is generally fresh in the outcrop, whereas softer groundwater with higher total dissolved solids occurs in the subsurface. High iron and manganese content is characteristic of much of the aquifer, and localized saline contamination has affected portions of the aquifer (TWDB 2006).

Minor aquifers include the Yegua-Jackson, Sparta, and Queen City aquifers. These three aquifers contain water under water-table conditions in their outcrop areas, and the water becomes artesian as the formations pass beneath less permeable rocks in the subsurface. Under water-table conditions are when the water is confined and does not rise in wells above the top of the aquifer. Groundwater for domestic purposes and livestock is available from shallow wells over most of the each aquifer's extent. Locally, water for municipal, industrial, and irrigation purposes is also available. The Yegua-Jackson aquifer yields range from a few gpm to over 300 gpm. The Sparta aquifer yields 100 to 500 gpm and locally iron concentrations may exceed the state's secondary drinking water standard. The Queen City aquifer typically yields less than 400 gpm (TWDB 2006).

3.4 Floodplains, Wetlands, Riparian Areas

3.4.1 Floodplains

For administrative purposes, the 100-year floodplain serves as the basis for floodplain management for Federal actions. These are in general relatively narrow areas along natural drainage ways that carry large quantities of runoff following periods of high precipitation.

The proposed lease parcel is not within a mapped floodplain.

3.4.2 Wetlands, Riparian Areas

Wetland habitats provide important wintering and migration habitat for several species of Migratory Birds. Wetlands also provide a link between land and water and are some of the most productive ecosystems in the world. Executive Order (EO) 11990 on the Protection of Wetlands provides opportunity for early review of Federal agency plans regarding new construction in wetland areas.

The U.S. Fish and Wildlife Service (Service) National Wetlands Inventory has no mapped wetlands or riparian habitats within the lease parcel. However, several creeks and stock ponds are located within the lease parcel.

3.5 Farmlands, Prime or Unique

The Farmland Protection Policy Act (FPPA), Public Law 97-98, as amended, directs Federal agencies to identify and take into account the adverse effects of Federal programs on the preservation of farmland. The FPPA is intended to minimize the extent Federal programs have on the conversion of farmland to nonagricultural uses. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, oilseed crops, and is also available for these uses. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop.

The NRCS Web Soil Survey and Soils Data system identified Kurth fine sandy loam, 1 to 3 percent slopes, soil type as "All areas are prime farmland." This soil types make up 62.7 acres (71.0%) of the proposed lease parcel. The remaining 25.6 acres (29.0%) is identified as "not prime farmland."

3.6 Heritage Resources

3.6.1 Cultural Resources

Approximately 25,000 archeological sites are recorded in Texas and over 3,000 historic properties in the state are listed on the National Register of Historic Places.

Blanket cultural resource surveys have not been conducted on the proposed lease parcels and the affected environment is unknown. Site-specific cultural resource surveys and appropriate mitigation measures are required as part of the APD process after the parcels are leased. Once that is complete, cultural resources that occur in the area will be known.

3.6.2 Paleontology

All cultural resource surveys for projects in the OFO area of responsibility are required to include statements on any new paleontological material discovered during inventory. These reports are reviewed and new fossil material is reported to paleontologists. Protection and preservation of significant fossil materials in specific locations would be required for any BLM permitted project.

3.6.3 Native American Religious Concerns

Traditional Cultural Properties (TCPs) are places that have cultural values that transcend the values of scientific importance that are normally ascribed to cultural resources such as archaeological sites. Native American communities are most likely to identify TCPs, although TCPs are not restricted to those associations. Some TCPs are well known, while others may only be known to a small group of traditional practitioners, or otherwise only vaguely known.

There are several pieces of legislation or Executive Orders that should be considered when evaluating Native American religious concerns. These govern the protection, access and use of sacred sites, possession of sacred items, protection and treatment of human remains, and the protection of archaeological resources ascribed with religious or historic importance. These include the following:

- The American Indian Religious Freedom Act of 1978 (AIRFA; 42 USC 1996, P.L. 95-431 Stat. 469).
- Executive Order 13007 (24 May 1996).
- The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001, P.L. 101-601).
- The Archaeological Resources Protection Act of 1979 (ARPA; 16 USC 470, Public Law 96-95).

For the Proposed Action, identification of TCPs will be conducted during the ADP process, limited to reviewing existing published and unpublished literature, and BLM tribal consultation efforts specific to this proposed action.

3.7 Invasive, Non-native Species

Noxious weeds can have a disastrous impact on biodiversity and natural ecosystems. Noxious weeds affect native plant species by out-competing native vegetation for light, water and soil nutrients. Noxious weeds cause \$2 to \$3 million in estimated losses to producers annually. These losses are attributed to: (1) decreased quality of agricultural products due to high levels of competition from noxious weeds; (2) decreased quantity of agricultural products due to noxious weed infestations; and (3) costs to control and/or prevent the spread of noxious weeds.

The State of Texas listed 27 plant species as having a serious potential to cause economic or ecological harm to the state (4 TAC §19.300, as amended). The Early Detection & Distribution Mapping System (2012) at the University of Georgia has identified 55 species in Houston County as being exotic to the US and listed as a problem somewhere in the US. Five of the 55 species were also listed by the State of Texas including: Chinese tallow tree (*Triadica sebifera*), giant reed (*Arundo donax*), hydrilla (*Hydrilla verticillata*), giant salvinia (*Salvinia molesta*), and Japanese climbing fern (*Lygodium japonicum*). Chinese tallow tree was found in greatest numbers within the county, while the other four species were documented from less than three sites each. The extent of noxious weeds on the proposed lease parcel is unknown.

3.8 Vegetation

Differences in amount and frequency of rainfall, variation in soils and temperatures gives Texas a great diversity of vegetation. From the grassy plains of North Texas to the coastal and inland wetlands to the semi-arid brush lands of South Texas, plant species change accordingly.

In Houston County, woodland is an important natural resource. Landowners produce both pine and hardwood. Pine is sold for pulpwood, posts, crossties, saw timber or other wood products. Hardwoods are cut mainly for crossties, pulpwood, or firewood.

The proposed lease parcel is located in the Western Coastal Plain (MLRA 133B) ecoregion characterized by pine-hardwood vegetation (NRCS 2006). The predominant vegetation form consists of needle-leaved evergreen trees. Belts of cold deciduous, broad-leaved hardwoods are prevalent along rivers. The dominant trees are loblolly pine (*Pinus taeda*), shortleaf pine (*P. echinata*), sweetgum (*Liquidambar styraciflua*), southern red oak (*Quercus falcata*), white oak (*Q. alba*), flowering dogwood (*Cornus florida*), and post oak (*Q. stellata*). American beautyberry (*Callicarpa americana*), greenbrier, hawthorns, and berry vines are included in the woody understory. Little bluestem (*Schizachyrium scoparium*) and pinhole bluestem (*Bothriochloa barbinodis* var. *perforata*) are the dominant herbaceous species. Other major grasses include: beaked panicum (*Panicum anceps*), longleaf uniola (*Chasmanthium sessiliflorum*), spike uniola (*C. laxum*), and yellow Indiangrass (*Sorghastrum nutans*). This plant community has many species of low-growing panicums and paspalums and perennial forbs.

3.9 Wildlife

3.9.1 Threatened and Endangered Species

The purpose of the Endangered Species Act (ESA) is to ensure that federal agencies and departments use their authorities to protect and conserve endangered and threatened species. Section 7 of the ESA requires that federal agencies prevent or modify any projects authorized, funded, or carried out by the agencies that are "likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species."

The Service's federally-listed endangered, threatened, proposed, and candidate species for Houston County, Texas consist of Neches River rose-mallow and the red-cockaded woodpecker.

Neches River rose-mallow

Habitat: Neches River rose-mallow occurs in open marshy habitats such as sloughs and oxbows, and occasionally on river terraces and sand bars. It usually grows in standing rather than flowing water in seasonally wet soils that are flooded in late winter to spring and dry out at the surface in summer.

Current Distribution: This perennial plant is only known from east Texas at seven naturally occurring locations in Cherokee, Harrison, Houston, and Trinity counties plus three reintroduction sites in Houston County on the Davy Crockett National Forest and one research population in Nacogdoches County on Stephen F. Austin State University land.

Surveys must be conducted when conditions are appropriate to detect the plant. Flowering June-August

Red-cockaded woodpecker

Habitat: Open pine forests with large, widely-spaced older trees provide essential habitat for the red-cockaded woodpecker.

Current Distribution: The red-cockaded woodpecker can be found in the Pinewoods of east Texas.

3.9.2 Special Status Species

The Texas Parks and Wildlife department threatened and endangered species consist of the American peregrine falcon, Bachman's sparrow, Bald Eagle, interior least tern, peregrine falcon, piping plover, red-cockaded woodpecker, wood stork, creek chubsucker, paddlefish, black bear, Louisiana black bear, Rafinesque's big-eared bat, red wolf, Louisiana pigtoe, sandbank pocketbook, southern hickorynut, Texas heelspitter, alligator snapping turtle, Louisiana pine snake, Texas horned lizard, and the timber/canebrake rattlesnake.

American Peregrine Falcon

Habitat: Occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Current Distribution: Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south.

Interior Least Tern

Habitat: Nesting habitat of the Interior Least Tern includes bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with rivers and reservoirs. The birds prefer open habitat, and tend to avoid thick vegetation and narrow beaches. Sand and gravel bars within a wide unobstructed river channel, or open flats along shorelines of lakes and reservoirs, provide favorable nesting habitat. Nesting locations are often at the higher elevations away from the water's

edge, since nesting usually starts when river levels are high and relatively small amounts of sand are exposed.

Current Distribution: Today, the Interior Least Tern continues to breed in most of the major river systems, but its distribution is generally restricted to the less altered and more natural or little disturbed river segments. In Texas, Interior Least Terns are found at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, on the Prairie Dog Town Fork of the Red River in the eastern Panhandle, and along the Red River (Texas/Oklahoma boundary) into Arkansas.

Piping Plover

Habitat: Open sandy beaches, especially above tideline, and alkalai flats.

Current Distribution: Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats.

Wood Stork

Habitat: Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries).

Current Distribution: Breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960.

Bachman's Sparrow

Habitat: Open pine woods with scattered bushes and grassy understory in Pinewoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards.

Current Distribution: Remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub.

Creek Chubsucker

Habitat: Small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, upstream creeks.

Current Distribution: Tributaries of the Red, Sabine, Neches, Trinity, and San Jacinto rivers.

Paddlefish

Habitat: Paddlefish like to live in slow moving water of large rivers or reservoirs, usually in water deeper than four feet (130cm).

Current Distribution: The native range of paddlefish includes the Mississippi River basin from New York to Montana and south to the Gulf of Mexico. Historically in Texas, paddlefish lived in the Red River's tributaries, Sulphur River, Big Cypress Bayou, Sabine River, Neches River, Angelina River, Trinity River, and San Jacinto River.

Black Bear

Habitat: Bottomland hardwoods and large tracts of inaccessible forested areas.

Current Distribution: Formerly common throughout most of the state, is now surviving in remnant populations in portions of the Trans-Pecos.

Due to field characteristics it is similar to Louisiana Black Bear.

Louisiana Black Bear

Habitat: Bottomland hardwoods and large tracts of inaccessible forested areas.

Current Distribution: Possible as transient in east Texas.

Rafinesque's Big-Eared Bat

Habitat: Occurs in forested regions largely devoid of natural caves. Its natural roosting places are in hollow trees, crevices behind bark, and under dry leaves. It has been observed most frequently in buildings, both occupied and abandoned. Texas specimens have been captured in barns and abandoned wells.

Current Distribution: A bat of the southeastern United States, Rafinesque's big-eared bat reaches the westernmost portion of its range in the pine forests of East Texas.

Red Wolf

Habitat: The red wolf (*Canis rufus*) was once found throughout the eastern half of the state. It has now been extirpated from the wild, with the only known remnants of the population now in captive propagation.

Current Distribution: Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies

Louisiana Pigtoe

Habitat: Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments.

Current Distribution: Sabine, Neches, and Trinity (historic) River basins.

Sandbank Pocketbook

Habitat: Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms.

Current Distribution: East Texas, Sulfur south through San Jacinto River basins; Neches River.

Southern Hickorynut

Habitat: Medium sized gravel substrates with low to moderate current.

Current Distribution: Neches, Sabine, and Cypress river basins.

Texas Heelsplitter

Habitat: Quiet waters in mud or sand and also in reservoirs.

Current Distribution: Sabine, Neches, and Trinity River basins.

Alligator Snapping Turtle

Habitat: Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation. Active March-October; breeds April-October.

Current Distribution: Has been reported from almost all river systems in the Suwannee River in Florida to the San Antonio River in Texas.

Louisiana Pine Snake

Habitat: Mixed deciduous-longleaf pine woodlands. Breeds April-September.

Current Distribution: The Louisiana Pine Snake historically occurred in portions of west-central Louisiana and extreme east-central Texas. This area roughly coincides with a disjunct portion of the longleaf pine ecosystem situated west of the Mississippi River. The species is currently extant in a small portion of the historical range.

Texas Horned Lizard

Habitat: Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Breeds March-September.

Current Distribution: Texas horned lizards range from the south-central United States to northern Mexico, throughout much of Texas, Oklahoma, Kansas and New Mexico.

Timber/Canebrake Rattlesnake

Habitat: Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto.

Current Distribution: Eastern half of the state.

3.9.3 Migratory Birds

Executive Order (EO) 13186, 66 Fed. Reg. 3853, (January 17, 2001) identifies the responsibility of federal agencies to protect migratory birds and their habitats, and directs executive departments and agencies to undertake actions that will further implement the Migratory Bird Treaty Act (MBTA). Under the MBTA, incidental, unintentional, and accidental take, killing, or possession of a migratory bird or its parts, nests, eggs or products, manufactured or not, without a permit is unlawful. EO 13186 includes a directive for federal agencies to develop a memorandum of understanding (MOU) with the Service to promote the conservation of migratory bird populations, including their habitats, when their actions have, or are likely to have, a measurable negative effect on migratory bird populations. Whereas the MBTA only protects migratory birds, EO 13186 provides for the protection of both migratory birds and migratory bird habitat.

The NM-201304-085 in Houston County is located within the Bird Conservation Region 25, West Gulf Coastal Plain/Ouachitas. Twenty-eight birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the parcel site found nine species from the (Weches Route) survey list known to nest within the parcel area; they are as follows: The little blue heron, red-headed woodpecker, chuck-will's-widow, wood thrush, prairie warbler, Swainson's warbler, Kentucky warbler, painted bunting and the orchard oriole. All nine of the previous listed bird species utilize woodland or scrub to nest in.

3.9.4 Wildlife

Many species of animals utilize the habitat associated within this lease sale parcel. This lease sale, in and of itself, has no impact on wildlife. Future activities resulting from this lease sale could remove food, cover, and space for wildlife in this area. The more mobile species will move away from the area during the construction, drilling, and well completion phases of this petroleum exploration project to avoid direct mortality, the increase in human presence, and levels of noise. The less mobile species could suffer some mortality during the active construction phase of the project.

3.10 Wastes – Hazardous or Solid

The Resource Conservation and Recovery Act (RCRA) of 1976 established a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. The EPA regulations define solid wastes as any “discarded materials” subject to a number of exclusions. On January 6, 1988, EPA determined that oil and gas exploration, development and production wastes would not be regulated as hazardous wastes under RCRA. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, deals with the release (spillage, leaking, dumping, accumulation,

etc.), or threat of a release of hazardous substances into the environment. Despite many oil and gas constituent wastes being exempt from hazardous waste regulations, certain RCRA exempt contaminants could be subject to regulations as hazardous substances under CERCLA.

No hazardous or solid waste materials are known to be present on the proposed lease parcel. Leasing the proposed parcel would not result in any immediate introduction of hazardous and non-hazardous substances.

3.11 Mineral Resources

Texas has produced more oil and natural gas than any other state and to date remains the largest daily producer. Oil and natural gas are found in most parts of the state. No state or any other region worldwide has been as heavily explored or drilled for oil and natural gas as Texas. The Railroad Commission of Texas lists 374,625 current wells statewide, of which 4,513 active and inactive wells are on Federal leases. In Texas, an average of 356,621,060 barrels (BBL) of crude oil and 7,362,263,313 thousand cubic feet (MCF) were produced from 2006-2011. Oil and natural gas production in Texas can be divided into seven major producing basins. The Permian Basin dominates oil production in the state, and the Gulf Coast Basin dominates natural gas production. Major oil fields in Texas include Wasson, Yates, and Spraberry in West Texas, as well as the largest Texas oil field, East Texas field in the East Texas Basin. Major natural gas fields in Texas include Newark, East, field in the Fort Worth basin; Carthage field in East Texas; Panhandle, West, field in the Anadarko Basin; and Giddings field in the Gulf Coast basin (Kim and Ruppel 2005).

The main oil and gas fields in Houston County are the Kittrell, Bakerspring and Fort Trinidad fields in the south part of the county and the Navarrow and Grapeland fields in the northern part of the county; however wells are in production throughout the county. Lignite coal mining for energy production was an important natural resource in the southern part of Houston County in the past and may be again in the future.

3.12 Socioeconomics and Environmental Justice

3.12.1 Socioeconomics

Timber, livestock, cotton, small grain, and peanut farming are the major enterprise in the area. About 54 percent of the county is used as woodland, 34 percent as pasture and hayland, 10 percent as cropland, and the remaining 2 percent is urban or built-up areas or areas of water (NRCS 2002).

Farming, historically, was the primary source of income and continues to be one of the major land uses today. However, livestock production is now the leading agriculture enterprise in the county with cow-calf operations representing the majority of the industry. Income from cattle production alone makes up approximately 50 to 55 percent of the total agriculture income for Houston County each year. Houston County ranks near the top in beef cattle production in Texas. The county is one of the few remaining east Texas counties with a substantial row crop program. Major crops presently being grown include cotton, grain sorghum, peanuts, corn, and watermelons. A considerable acreage of small grains,

including oats, wheat, and rye is also planted each year, but primarily for grazing and erosion control. On a smaller scale agriculture includes dairy, truck farming, fish production, and fruit and pecan production (NRCS 2002).

Timber production, both pine and hardwood, ranks second in terms of agriculture income. Approximately 423,000 acres is devoted to timber production and owned by individual landowners, large timber companies, and the US Forest Service (NRCS 2002).

3.12.2 Environmental Justice

Executive Order 12989, issued on 11 February 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.

In 2011, the estimated population of Houston County was 23,484 people, which makes up 0.001% of the State of Texas total population. Approximately 10.5% of the population identified themselves as a person of Hispanic or Latino origin and 28.6% identified themselves as a person not white or of Hispanic or Latino origin.

The median household income in Houston County is \$31,929 about 35.7% below the state average of \$49,646. Approximately 23.7% of the population lives at or below the poverty level, which is higher than the 16.8% state-wide average.

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 OFO. All impacts would be linked to as yet undetermined future levels of lease development. The effects of oil and gas leasing in Texas are analyzed in the Texas RMP (1996), as amended (Chapter 4). That analysis, which assumes that the impacts from an average well, pipeline and access road would total 5.65 acres of surface disturbance in Texas is incorporated by reference into this document.

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.

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 foreseeable non-federal actions.

4.2 Effects from the No Action Alternative

Under the No Action Alternative, the proposed parcels under analysis in this EA 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 minerals 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.

4.3.1 Air Resources

4.3.1.1 Air Quality

While the act of leasing Federal minerals would produce no impacts to air quality, subsequent exploration/development of the proposed lease could increase air borne soil particles blown from new well pads or roads, exhaust emissions from drilling equipment, compressor engines, vehicles, dehydration and separation facilities coupled with 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, electrical lines compressor station), number of days to complete each kind of construction, number of days for each phase of the 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 geological formations from which production occurs. Currently, it is not feasible to directly quantify emissions. What can be said is that emissions associated with oil and gas exploration and production would incrementally contribute to increases in over air quality emissions into the atmosphere.

The most significant criteria pollutants emitted by oil and gas operations in general are VOCs, particulate matter and NO₂. VOCs and NO_x contribute to the formation of ozone, which is a pollutant of concern in Oklahoma. The proposed leasing area is a significant distance from ozone nonattainment areas in Texas. The additional NO_x and VOCs emitted from any new oil and gas development on this lease is likely too small to have a significant effect on the overall ozone levels of the area.

Mitigation

The BLM encourages industry to incorporate and implement best management practices (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 Notice to Lessees' (NTL) 4(a) concerning the venting and flaring of gas on Federal leases for natural gas emissions that cannot be economically recovered, flared 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; require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and perform interim reclamation to reclaim areas of the pad not required for production facilities and to reduce the amount of dust from the pads. In addition, the BLM encourages oil and natural gas companies to adopt proven, cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions.

4.3.1.2 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 science 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 tract would have no direct impact on climate as a result of GHG emissions. There is an assumption, however, that leasing the parcels would have indirect effects on global climate through GHG emissions. However, those effects on global climate change cannot be determined. (Refer to 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.

Production statistics developed from EIA (EIA, 2012) are shown in table below for the US and Texas.

2010 Oil and Gas Production

Location	Oil (bbl)	% U.S. Total	Gas (MMcf)	% U.S. Total
United States	1,999,731,000	100	26,836,353	100
Texas	427,386,000	21.4	7,593,697	28.3
Federal leases in Texas	291,000	0.01	20,831	0.08

In order to estimate the contribution of Federal oil and gas leases to greenhouse gases in Texas 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's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010* (EPA, 2012b), and applying production percentages to estimate emissions for Texas. 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.

2010 Oil and Gas Field Production Potential Emissions

Location	Oil (Metric tons of CO ₂ ^e)		Gas (Metric tons of CO ₂ ^e)		Total O&G Production (Metric tons CO ₂ e)	%U.S. Total GHG emissions
	CO ₂	CH ₄	CO ₂	CH ₄		
United States	300,000	30,600,000	10,800,000	126,000,000	167,700,000	2.6
Texas	64,200	6,548,400	3,056,400	35,658,000	45,327,000	0.71
Federal leases in Texas	30	3,060	8,640	100,800	112,530	0.002

The table above shows the estimated greenhouse gas emissions for oil and gas field production for the U.S., Texas, and Federal leases in Texas. 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 project's GHG contribution. Note that units of Metric tons CO₂^e have been used in the table above to avoid very small numbers. CO₂^e is the concentration of CO₂ that would cause the same level of radiative forcing as a given type and concentration of greenhouse gas.

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 CO₂^e from the life cycle of oil and gas. For example, acquisition (drilling and development) for petroleum is responsible for only 8% of the total CO₂^e 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 Texas 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.

Potential Greenhouse Gas Emissions Resulting from Proposed Lease Sale

Referenced to Latest Available Estimates from 2010

Total U.S. GHG Emissions From All Sources	6,372,900,000 metric tons	100.00 %
Total U.S. GHG Emissions From Oil & Gas Field Production	167,700,000 metric tons	2.6%
Total Texas Emissions From Oil & Gas Field Production	45,327,000 metric tons	0.71%
Total Texas Emissions From Federal lease Oil & Gas Field Production (4,513 wells)	112,530 metric tons	0.002%
Total Potential GHG Emissions From Oil & Gas Field Production at Full	24.93 metric tons	0.0000004%

Development For Proposed Action (1 Well)		
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The table above estimated that the total emissions from Federal leases in Texas in 2010 were 112,530 metric tons CO₂^e. Therefore, the estimate of emission per well is 24.93 metric tons CO₂e annually.

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 (CEQ), and thus are not required to be analyzed under NEPA. GHG 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 GHG emissions resulting from consumption.

Mitigation

The EPA's inventory data describes "Natural Gas Systems" and "Petroleum Systems" as the two major categories of total US sources of GHG emissions. The inventory identifies the contributions of natural gas and petroleum systems to total CO₂ and CH₄ 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 water (via leaks, spills and unauthorized flaring and venting).

The EPA data show that improved practices and technology and changing economics have reduced CO₂ emissions from oil and gas exploration and development (Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2010 (EPA, 2012b)). 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 OFO 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. While EPA data shows that methane emissions increased from oil and gas exploration and development from 1990-2010, reductions in methane emissions from oil and gas exploration and development should occur in future years as a result of EPA's recently finalized oil and gas air emissions regulations.

4.3.2 Soils

While the act of leasing Federal minerals would produce no impacts to soils, subsequent exploration/development of the proposed lease may produce impacts by physically disturbing the topsoil and exposing the substratum soil on subsequent project areas. Direct impacts resulting from the oil and gas construction of well pads, access roads, and reserve pits include removal of vegetation, exposure of the soil, mixing of horizons, compaction, loss of topsoil productivity and susceptibility to

wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion with the possible exception of dust from vehicle traffic. These impacts could result in increased indirect impacts such as runoff, erosion and off-site sedimentation. Activities that could cause these types of indirect impacts include construction and operation on well sites, access roads, gas pipelines and facilities.

Contamination of soil from drilling and production wastes mixed into soil or spilled on the soil surfaces could cause a long-term reduction in site productivity. Some of these direct impacts can be reduced or avoided through proper design, construction, maintenance and implementation of BMPs.

Additional soil impacts associated with lease development would occur when heavy precipitation causes water erosion damage. When water saturated segment(s) on the access road become impassable, vehicles may still be driven over the road. Consequently, deep tire ruts would develop. Where impassable segments are created from deep rutting, unauthorized driving may occur outside the designated route of access roads.

Mitigation

The operator would stockpile the topsoil from the surface of well pads which would be used for surface reclamation of the well pads. The impact to the soil would be remedied upon reclamation of well pads when the stockpiled soil that was specifically conserved to establish a seed bed is spread over well pads and vegetation re-establishes.

Reserve pits would be re-contoured and reseeded as described in Conditions of Approval (COA) attached to the APD. Upon abandonment of wells and/or when access roads are no longer in service the Authorized Officer (AO) would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in attached COAs. During the life of the development, all disturbed areas not needed for active support of production operations should undergo “interim” reclamation in order to minimize the environmental impacts of development on other resources and uses. Earthwork for interim and final reclamation must be completed within 6 months of well completion or well plugging (weather permitting). The operator shall submit a Sundry Notice and Report on Wells (Notice of Intent), prior to conducting interim reclamation.

Road construction requirements and regular maintenance would alleviate potential impacts to access roads from water erosion damage.

4.3.3 Water Resources

While the act of leasing Federal minerals would produce no impacts to water resources, subsequent exploration/development of the proposed lease may produce impacts. Surface disturbance from the construction of well pads, access roads, pipelines, and utility lines can result in degradation of surface water and groundwater quality from non-point source pollution, increased soil losses, and increased gully erosion.

Potential impacts that would occur due to construction of well pads, access roads, pipelines, and utility lines include increased surface runoff and off-site sedimentation brought about by soil disturbance; increased salt loading and water quality impairment of surface waters; channel morphology changes due to road and pipeline crossings; and possible contamination of surface waters by produced water. The magnitude of these impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activity would occur, and the timely implementation and success or failure of mitigation measures.

Direct impacts would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, and reclamation efforts. Construction activities would occur over a relatively short period; therefore, the majority of the disturbance would be intense but short lived. Direct impacts to surface water quality would be minor, short-term impacts which may occur during storm flow events.

Petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and groundwater quality. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

Mitigation

The use of a plastic-lined reserve pit, closed systems or steel tanks would reduce or eliminate seepage of drilling fluids into the soil and eventually reaching groundwater. Spills or produced fluids (e.g. saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soils onsite, or offsite, and may potentially impact surface and groundwater resources in the long term. The casing and cementing requirements imposed on proposed wells would reduce or eliminate the potential for groundwater contamination from drilling muds and other surface sources.

4.3.4 Floodplains, Wetlands, Riparian Areas

4.3.4.1 Floodplains

The proposed lease parcel is not located in any mapped floodplains resulting in no impacts to the resource as a result of leasing the Federal minerals or subsequent exploration/development of the proposed parcel.

If floodplain remapping occurs and the parcel is identified within a floodplain at a later date, exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in impairment of the floodplain values from removal of vegetation, removal of wildlife habitat, impairment of water quality, decreased flood water retention and decreased groundwater recharge.

Mitigation

Potential mitigation is deferred to site-specific development at the APD stage. If the lease was remapped to fall within a floodplain COAs would be attached to an APD for the purpose of protecting streams, rivers, and floodplains, and specify that surface disturbance would not be allowed within up to 200 meters of the outer edge of 100-year floodplains to protect the integrity of those floodplains.

4.3.4.2 Wetlands, Riparian Areas

While the act of leasing Federal minerals would produce no direct impacts to wetlands or riparian areas; no adverse impacts are expected for wetlands or riparian areas if exploration/development occurred on this lease parcel in the future.

Mitigation

Potential mitigation is deferred to site-specific development at the APD stage.

Due to the stock ponds and creek that are located on the lease parcel, future operations within this lease sale parcel will require, but not limited to, the following mitigation measures:

- The BLM Wildlife Resource General Conditions of Approval (WRCOAs) #3 **Pipelines and Wetlands**: Bore under any encountered wetlands for the purpose of pipeline installation. Trenching will not be used to install any pipeline through a wetland or to cross any creek.
- Best Management Practices (BMPs) (i.e. silt fencing, haybales, etc.) are required to minimize sediment and run-off from entering into associated water courses or stock ponds during operations.

4.3.5 Farmlands, Prime or Unique

While the act of leasing Federal minerals would produce no impacts to prime or unique farmlands, subsequent exploration/development of the proposed lease would remove the area from production for the life of the well. Direct impacts resulting from the construction of well pads, access roads, and reserve pits can affect the soil properties, increase erosion, and reduce water infiltration potentially affecting the characteristics unique to prime or unique farmlands.

The acres of farmlands lost depend on the amount and type of development proposed during the APD process. It is anticipated that there would be no permanent loss of prime or unique farmland once all reclamation activities are complete. Initial construction and development would result in greater surface disturbance and more area temporarily lost for production. Acres not needed during the production phase would be reclaimed and returned to prime or unique farmlands suitable for production. When the well is no longer productive, the entire site would be reclaimed and returned to prime or unique farmlands.

Mitigation

During the APD process, efforts would be made to relocate the disturbance onto soils identified as “not prime farmland”; however, if relocation is not an option the following mitigation measure would be placed on the project.

When removing soil, the three major mineral soil horizons (A, B, and C) would be removed and stockpiled independent of one another. All separation would occur prior to implementation of any other construction activities. During the interim and final reclamation phases, the three independently stockpiled soil layers would be replaced in the reverse order that they were removed with the C horizon placed first followed by B, then A.

The soil and water resources mitigation measures would also minimize the impacts to prime or unique farmlands.

4.3.6 Heritage Resources

4.3.6.1 Cultural Resources

While the act of leasing federal minerals would produce no direct impacts to cultural resources, subsequent development of a lease may produce impacts. To comply with Section 106 of the National Historic Preservation Act, as amended, a cultural resources survey will need to be conducted for all surface disturbance activities related to development of the lease. Direct and indirect effects cannot be predicted without analysis of site-specific development proposals. These proposals would occur at the APD stage of development. Potential impacts at that stage could include increased human activity and possibility of removal of, or damage to, heritage artifacts. The increase in human activity in the area increases the possibility of irretrievable loss of information pertaining to the heritage of the project region. Conversely, the benefits to heritage resources derived from the future development are the heritage and historic survey that adds to literature, information, and knowledge of cultural resources.

Many cultural resource issues exist beyond the National Historic Preservation Act, such as state and municipal registers of historic sites, National Heritage Areas, National Trails, or other heritage designations. This action does not affect any of these other types of cultural resources.

Mitigation

Specific mitigation measures, including, but not limited to, possible site avoidance or excavation and data recovery would have to be determined when site-specific development proposals are received.

If human remains are discovered the procedures of the Texas Health and Safety Code (Title 13, Part 2, Chapter 22 of the Texas Administrative Code) or the NAGPRA shall apply, as appropriate.

4.3.6.2 Paleontology

Direct and indirect effects cannot be predicted without analysis of site-specific development proposals. These proposals would occur at the APD stage of development. Potential impacts at that stage could

include increased human activity and possibility of removal of, or damage to, paleontology resources. The increase in human activity in the area increases the possibility of irretrievable loss of information pertaining to the paleontology of the project region. Conversely, a benefit to paleontology resources could occur if potential future development results in a paleontology survey that adds to literature, information, and knowledge of paleontology resources.

Mitigation

Specific mitigation measures, including, but not limited to, possible site avoidance or excavation and data recording would have to be determined when site-specific development proposals are received.

4.3.6.3 Native American Religious Concerns

The Wichita and Affiliated Tribes, the Caddo Nation, and the Comanche Tribe of Oklahoma were notified of the proposed project.

The proposed action is not known to physically threaten any TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere or otherwise hinder the performance of traditional ceremonies and rituals pursuant to AIRFA or EO 13007. There are currently no known remains that fall within the purview of NAGPRA or ARPA that are threatened by leasing.

Mitigation

In the event that lease development practices are found in the future to have an adverse effect on TCPs, the operator and the BLM and operator, in consultation with the affected tribe(s) will take action to mitigate or negate those effects. Measures include, but are not limited to physical barriers to protect resources, relocation of practices responsible for the adverse effects, or other treatments as appropriate.

4.3.7 Invasive, Non-native Species

While the act of leasing Federal minerals would not contribute to the spread or control of invasive or non-native species, subsequent exploration/development of the proposed lease may. Any surface disturbance could establish new populations of invasive non-native species, although the probability of this happening cannot be predicted using existing information. Noxious weed seeds can be carried to and from the project areas by construction equipment, the drilling rig and transport vehicles. At the APD stage, BLM requirements for use of weed control strategies would minimize the potential for the spread of these species.

Mitigation

Mitigation is deferred to site-specific development at the APD stage. BMPs require that all actions on public lands that involve surface disturbance or reclamation take reasonable steps to prevent the introduction or spread of noxious weeds, including requirements to use weed-free hay, mulch and straw.

4.3.8 Vegetation

While the act of leasing Federal minerals would produce no impacts to vegetative resources, subsequent exploration/development of the proposed lease would have impacts to vegetation. The level of impact depends on the vegetation type, the vegetative community composition, soil type, hydrology, and the topography of the parcel. Surface-disturbing activities could affect vegetation by removing, trampling, or killing the vegetation; churning soils; losing substrates for plant growth; impacting biological crusts; disrupting seedbanks; burying individual plants; reducing germination rates; covering plants with fugitive dust; and generating sites for undesirable weedy species. In addition, development could reduce available forage or alter livestock distribution leading to overgrazing or other localized excess grazing impacts to palatable plant species. If these impacts occurred after seed germination but prior to seed establishment, both current and future generations could be affected.

Vegetation would be lost within the construction areas of pads, roads, and rights of ways. Those areas covered in compacted native substrates, such as pads and roads, would have no vegetation for the life of the well. Interim and final reclamation should result in vegetation establishment in three to five growing season (one to two years) with appropriate techniques used and adequate precipitation. Inadequate precipitation over several growing seasons could result in loss of vegetative cover, leading to weed invasion and deterioration of native vegetation.

Mitigation

Mitigation is primarily deferred to site-specific development at the APD stage. If potential wells are productive disturbed areas not needed for the production facility would be reclaimed. In the case of non-productive wells, all disturbed areas should be reclaimed through reseeding or vegetative cover reestablishment. BMPs identified in BLM guidance documents such as the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book (USDI, 2007) recommend areas to be restored with native vegetation in regards to both species and structure. This recommendation is contingent upon the wishes of the surface owner.

4.3.9 Wildlife

4.3.9.1 Threatened and Endangered Species

While the act of leasing Federal minerals produces no impacts to Threatened and Endangered Species, subsequent exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in removal of wildlife habitat.

Protective stipulation WO-ESA-7 would be attached to any lease of a tract which falls within an area of potential wildlife habitat. WO-ESA-7 states that, "The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity

that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.”

Mitigation

According to above information all or portions of these leases could contain Federal and/or state listed threatened or endangered species or/and their habitats. Any proposed surface disturbing activity may require an inventory and consultation with the Service and/or the state wildlife agency. The consultation could take up to 180 days to complete. Surface occupancy could be restricted or not allowed as a result of the consultation. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

Additionally, the Wildlife Resource General Conditions of Approval (WRGCOAs) included in an approved APD and use of standard Best Management Practices (BMPs) should provide extra measures of protection to general wildlife populations and habitats in the area. Impacts to the wildlife resource component of the environment can be avoided or minimized by adopting the WRGCOAs and BMPs.

4.3.9.2 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.

Mitigation

The Wildlife Resource General Conditions of Approval (WRGCOAs) included in an approved APD and use of standard Best Management Practices (BMPs) should provide extra measures of protection to general wildlife populations and habitats in the area. Impacts to the wildlife resource component of the environment can be avoided or minimized by adopting the WRGCOAs and BMPs

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.

4.3.9.3 Migratory Birds

While the act of leasing Federal minerals produces no impacts to migratory birds, subsequent exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in an impact to migratory birds and their habitat.

Mitigation

Per the Memorandum of Understanding between BLM and the USFWS, entitled “To Promote the Conservation of Migratory Birds,” the following temporal and spatial conservation measures must be implemented as part of the Conditions of Approval with any permit to drill:

- 1) Avoid any take of migratory birds and/or minimize the loss, destruction, or degradation of migratory bird habitat while completing the proposed project or action.
- 2) If a proposed project or action includes a reasonable likelihood that take of migratory birds will occur, then complete actions that could take migratory birds outside of their nesting season. This includes clearing or cutting of vegetation, grubbing, etc. Strive to complete all disruptive activities outside the peak of migratory bird nesting season to the greatest extent possible.
- 3) If no migratory birds are found nesting in proposed project or action areas immediately prior to the time when construction and associated activities are to occur, then the project activity may proceed as planned.

Additionally, the Wildlife Resource General Conditions of Approval (WRGCOAs) #4 (Burying Transmission Lines) and Notice to Lessees (NTL) 96-01-TDO (Modification of Oil and Gas Facilities to Minimize Bird and Bat Mortality) address measures designed to protect migratory birds from accidental deaths associated with power line collisions/electrocutions, open-vent exhaust stacks and open pits and tanks.

4.3.9.4 Wildlife

The types and extent of impacts expected from oil and gas development to wildlife species and habitats from development are similar to those described in the 4.9 Special Status Species Section. Although reclamation and restoration efforts for surface disturbance could provide for the integrity of other resources, these efforts may not always provide the same habitat values (e.g. structure, composition, cover, etc.) in the short or in some instance, the long-term in complex vegetative community types (e.g., shrub oak communities). The short-term negative impact to wildlife would occur during the construction phase of the operation due to noise and habitat destruction.

In general, most wildlife species would become habituated to the new facilities. For other wildlife species with a low tolerance to activities, the operations on the well pad would continue to displace wildlife from the area due to ongoing disturbances such as vehicle traffic, noise and equipment maintenance. The conditions of approval would alleviate most losses of wildlife species, such as; fencing the reserve pits, netting storage tanks, installation or other modifications of cones on separator stacks, and timing stipulations. The magnitude of above effects would be dependent on the rate and location of the oil and gas development, but populations could likely not recover to pre-disturbance levels until the activity was completed and the vegetative community restored.

Mitigation

Measures would be taken to prevent, minimize, or mitigate impacts to fish and wildlife animal species from exploration and development activities. Prior to authorization, activities would be evaluated on a case-by-case basis, and the project would be subject to mitigation measures. Mitigation could potentially include rapid revegetation, noise restrictions, project relocation, or pre-disturbance wildlife species surveying.

4.3.10 Wastes – Hazardous or Solid

While the act of leasing Federal minerals would produce no impacts on the environment from hazardous or solid wastes, subsequent exploration/development of the proposed lease could have result in the introduction of hazardous substances to the site. Hazardous substances may be produced, used, stored, transported or disposed of as a result of the project. Properly used, stored, and disposed of hazardous and non-hazardous substances greatly decreases the potential for any impact on any environmental resources. One way operators and the BLM ensure hazardous and non-hazardous substances are properly managed in through the preparation of a Spill Prevention, Control, and Countermeasure (SPCC) plan.

Mitigation

Specific mitigation is deferred to the APD process. The following measures are common to most projects: all trash would be placed in a portable trash cage and hauled to an approved landfill, with no burial or burning of trash permitted; chemical toilets would be provided for human waste; fresh water zones encountered during drilling operations would be isolated by using casing and cementing procedures; a berm or dike would enclose all production facilities if a well is productive; and all waste from all waste streams on site would be removed to an approved disposal site.

4.3.11 Mineral Resources

While the act of leasing Federal minerals would produce no impacts to mineral resources, subsequent exploration/development of the proposed lease could impact the production horizons and reservoir pressures. If production wells are established, the resources allotted to the wells would eventually be depleted. The amount and location of direct and indirect effects cannot be predicted until site-specific development information is available typically during the APD stage.

The proposed lease parcel does not appear to conflict with other mineral resources such as coal, sand, gravel, or salt resulting in no impacts to these resources.

Mitigation

Mitigation is deferred to site-specific development at the APD stage. Spacing orders and allowable production orders are designed to conserve the oil and/or gas resource and provide maximum recovery.

4.3.12 Socioeconomics and Environmental Justice

No minority or low income populations would be directly affected in the vicinity of the proposed lease parcel. Indirect impacts could include an increase in overall employment opportunities related to the oil and gas and service support industry in the region, as well as the economic benefits to State and County governments related to royalty payments and severance taxes. Other impacts could include a small increase in activity and noise disturbance in areas used for agriculture and recreational activities. However, these impacts would apply to all land users in the area.

Mitigation

Mitigation is deferred to site-specific development at the APD stage.

4.13 Cumulative Effects

The NMSO manages approximately 41 million acres of Federal mineral estate. Of the 41 million acres, 35 million acres are available for oil and gas leasing. Approximately 17% of the 35 million acres is currently leased (73% of the leases are in production and 63% of the lease acres are in production). The NMSO received 100 parcel nominations (56,854.86 acres) for consideration in the April 2013 Oil & Gas Lease Sale, and is proposing to lease 55 (35,707.88 acres) of the 100 parcels. If these 100 parcels were leased, the percentage of Federal minerals leased would not change. The Carlsbad, Roswell, Taos and Oklahoma Field Office (Oklahoma and Kansas) parcels are analyzed under separate EAs.

Table 5A. Actual - Acres of Federal Minerals/Acres Available/Acres Leased:

State	Federal O&G Mineral Ownership	Acres Available	Acres Leased	Percent Leased
KS	744,000	614,586	127,414	21%
NM	34,774,457	29,751,242	5,023,215	17%
OK	1,998,932	1,668,132	330,800	20%
TX	3,404,298	3,013,207	391,091	13%
Totals/Average	40,921,687	35,058,167	5,862,520	17%

Table 5B. Parcels Nominated & Offered in the January 2013 Oil & Gas Lease Sale:

Field Office	No. of Nominated Parcels	Acres of Nominated Parcels	No. of Parcels to be Offered	Acres of Parcels to be Offered
Carlsbad	11	6,683.29	6	4,121.20
Roswell	1	120.00	1	120.00
Farmington	53	23,913.74	14	5413.60
Kansas	1	240.00	1	240.00
Texas	29	25,118.75	29	25,118.75
Oklahoma	5	779.08	4	694.33
Totals	100	56,854.86	55	35,707.88

Table 5C. Foreseeable - Acres of Federal Minerals/Acres Available/Acres Leased:

State	Federal O&G Mineral Ownership	Acres Available	Acres Leased	Percent Leased
KS	744,000	614,586	127,654	21%
NM	34,774,457	29,751,242	5,053,932	17%
OK	1,998,932	1,668,132	331,579	20%
TX	3,404,298	3,013,207	416,210	14%
Totals/Average	40,921,687	35,058,167	5,929,375	17%

The cumulative impacts fluctuate with the gradual reclamation of well abandonments and the creation of new additional surface disturbances in the construction of new access roads and well pads. The on-going process of restoration of abandonments and creating new disturbances for drilling new wells gradually accumulates as the minerals are extracted from the land. Preserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts.

Analysis of cumulative impacts for reasonably foreseeable development of oil and gas wells in Texas was analyzed in the Texas RMP (1996), as amended (pg. 4-6 – 4-8). Potential development of all available federal minerals in Texas including those in the proposed lease parcels was included as part of the analysis. Total surface disturbance projected by the plan was based on an estimated 20 Federal wells being drilled annually in Texas with an estimated 113 acres of disturbance. Over the last 10 years there have been no changes to the basic assumptions or projections described in the Texas RMP (1996), as amended, analysis.

More than 100 years of oil and gas development in Texas has resulted in an extensive infrastructure of existing roads and pipelines. The Railroad Commission of Texas lists 374,625 current wells statewide, of which 4,513 active and inactive wells are on Federal leases. Impacts from this development would remain on the landscape until final abandonment and reclamation of facilities occurs as wells are plugged when they are no longer economically viable.

4.13.1 Effects on Air Resources

The following analysis of cumulative impacts of the proposed action on air quality will be limited to Houston County, TX. The cumulative impacts of GHG emissions and their relationship to climate change are evaluated at the national and global levels in the Air Quality Technical Report (USDI 2011).

4.13.1.1 Effects of Other Past, Present, and Reasonably Foreseeable Actions on Air Resources

The primary activities that contribute to levels of air pollutant and GHG emissions in Houston County are predominately combustible engines of road and non-road, diesel and gasoline vehicles and equipment. The Air Quality Technical Report includes a description of the varied sources of national and regional emissions that are incorporated here to represent the past, present and reasonably foreseeable impacts to air resources (USDI BLM 2011). It includes a summary of emissions on the national and regional scale by industry source. Sources that are considered to have notable contributions to air quality impacts and

GHG emissions include electrical generating units, fossil fuel production (nationally and regionally) and transportation.

4.13.1.2 Cumulative Effects of the Proposed Action on Air Quality

The small increase in emissions that could result from approval of the proposed action would not result in the area violating the NAAQS for any criteria pollutant. In October 2012, EPA regulations that require control of VOC emissions from oil and gas development became effective. These regulations will reduce VOC emissions from oil and gas exploration and production emissions that contribute to the formation of ozone. Emissions from the any development of the leases is not expected to impact the 8-hour average ozone concentrations, or any other criteria pollutants in the area of the proposed lease.

4.13.1.3 Cumulative Effects of the Proposed Action on Climate Change

The very small increase in GHG emissions that could result from approval of the proposed action would not produce climate change impacts that differ from the No Action Alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the proposed action cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to predict with certainty the net impacts from the proposed action on global or regional climate.

The Air Quality Technical Report (USDI 2011) discusses the relationship of past, present and future predicted emissions to climate change and the limitations in predicting local and regional impacts related to emissions. It is currently not feasible to know with certainty the net impacts from particular emissions associated with activities associated with Federal actions; however, EPA's recently finalized oil and gas air quality regulations have a co-benefit of methane reduction that will reduce greenhouse gas emissions from any oil and gas development that would occur on this lease.

5.0 Consultation/Coordination

This section includes the resource specialists located within the OFO that specifically participated and provided input in the lease parcel review process and the development of this EA document.

ID Team Member	Title	Organization
Ryan Howell/Larry Moore	Archaeologist	BLM
Becky Peters	Wildlife Biologist	BLM
Pat Stong	Geologist	BLM
Melinda Fisher	Natural Resource Specialist	BLM
Galen Schwertfeger	Environmental Specialist	BLM
Gary McDonald	Environmental Specialist	BLM
Larry Levesque	Planning and Environmental Coordinator	BLM

On 22 October 2012 a briefing for the BLM NM State Director was held at the Oklahoma Field Office to review Field Office recommendations for nominated parcels.

5.1 Public Involvement

The nominated parcels, along with the appropriate stipulations from the Texas RMP (1996), as amended were posted online for a two week review period beginning October 29, 2012. No comments were received. This EA will be available for public review and comment for 30 days beginning December 3, 2012. No comments were received. .

6.0 References

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7.0 Authorities

Code of Federal Regulations (CFR)

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

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

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

Appendix 1. April 2013 Oil & Gas Lease Sale – Oklahoma Field Office – Texas

Parcels and applicable stipulations are presented in the table below.

Parcel	Comments	Acres
<u>NM-201304-085</u> TX TRACT K-1J Houston County, TX	<u>Private Surface:</u> <u>Lease with the following Stipulations:</u> ORA-2:Wetland/Riparian Protection WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation	89.000
<u>NM-201304-072</u> TX TRACT K-1-III Parcel #1 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) LN-3B: Mt. Olive Church & Cemetery	2408.920
<u>NM-201304-073</u> TX TRACT K-1-III Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	1374.380
<u>NM-201304-074</u> TX TRACT K-1-III Parcel #3 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2468.280
<u>NM-201304-075</u> TX TRACT K-1-III Parcel #5 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Nesting	1387.950

Parcel	Comments	Acres
<u>NM-201304-076</u> TX TRACT K-1-V Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Nesting	1571.590
<u>NM-201304-077</u> TX TRACT K-1A-VI Parcel #1 Houston and Trinity Counties, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2504.410
<u>NM-201304-078</u> TX TRACT K-1A-VI Parcel #2 Houston and Trinity Counties, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	1559.220
<u>NM-201304-079</u> TX TRACT K-1B-III Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2398.710
<u>NM-201304-080</u> TX TRACT K-1B-III Parcel #3 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	374.350
<u>NM-201304-081</u> TX TRACT K-1B-V Parcel #2 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	2430.670

Parcel	Comments	Acres
<u>NM-201304-082</u> TX TRACT K-1G Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	477.000
<u>NM-201304-083</u> TX TRACT K-1H Parcel #1 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	388.870
<u>NM-201304-084</u> TX TRACT K-1I Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	292.000
<u>NM-201304-086</u> TX TRACT K-1J-I Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	84.000
<u>NM-201304-087</u> TX TRACT K-2Y Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Nesting	95.000
<u>NM-201304-088</u> TX TRACT K-2AA Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) CSU-1C: Drilling restriction within 150' of Hiking and ORV Trails	410.000

Parcel	Comments	Acres
<u>NM-201304-089</u> TX TRACT K-21 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	72.000
<u>NM-201304-090</u> TX TRACT K-31 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	60.000
<u>NM-201304-091</u> TX TRACT K-54 Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	30.000
<u>NM-201304-092</u> TX TRACT K-1-III Parcel #4A and 4B Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection	1263.270
<u>NM-201304-093</u> TX TRACT K-1B-V Parcel #3 K-43 K-1B-XIV Houston County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Davy Crockett National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU1-A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1I-2: Red-Cockaded Woodpecker Protection FS8 (TX) CSU-1H (TR K-1B-V Parcel #3): TX Natural Heritage Program Sensitive Plant & Community Protection	2515.230
<u>NM-201304-094</u> TX TRACT 62 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	82.590

Parcel	Comments	Acres
<u>NM-201304-095</u> TX TRACT 143 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1C: Drilling Restriction within 150' of Horse Trails FS8 (TX) CSU-1K: Flood Prevention & Erosion Control NM10: Drainage	77.010
<u>NM-201304-096</u> TX TRACT 301 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	81.200
<u>NM-201304-097</u> TX TRACT 380 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1C: Drilling Restriction within 150' of Horse Trails FS8 (TX) CSU-1K: Flood Prevention & Erosion Control NM10: Drainage	156.850
<u>NM-201304-098</u> TX TRACT 390-27 Parcel # 4 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	212.250
<u>NM-201304-099</u> TX TRACT 728 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1K: Flood Prevention & Erosion Control	94.00
<u>NM-201304-100</u> TX TRACT 421 Wise County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), LBJ Grasslands <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1B: Perennial & Intermittent Stream Protection FS8 (TX) CSU-1C: Drilling Restriction within 150' of Horse Trails FS8 (TX) CSU-1K: Flood Prevention & Erosion Control NM10: Drainage	160.000

Appendix 2. Texas Nominated Lease Sale Parcel.

Figure 2. Overview of Texas nominated parcels.

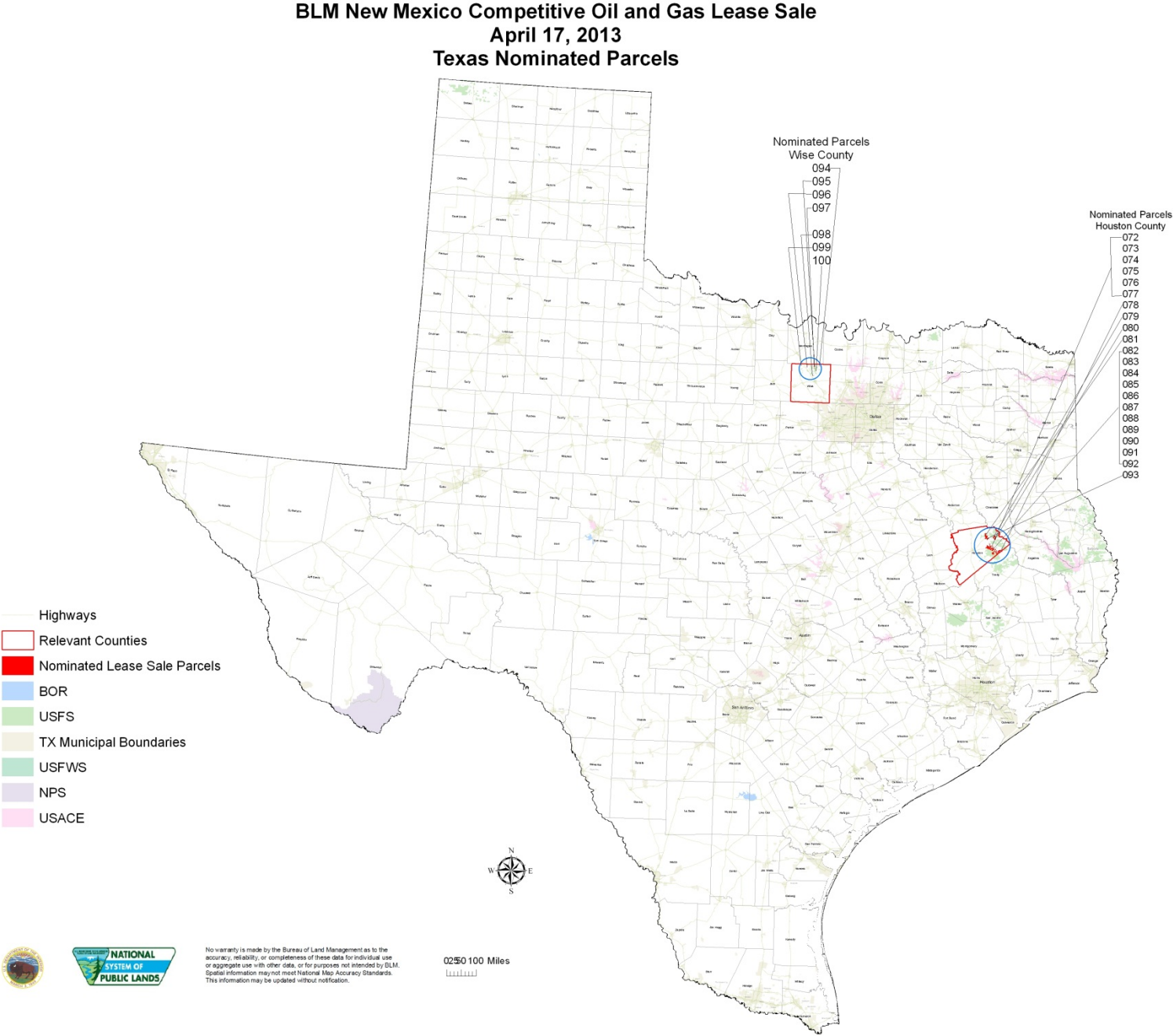


Figure 3. Houston County nominated parcels.

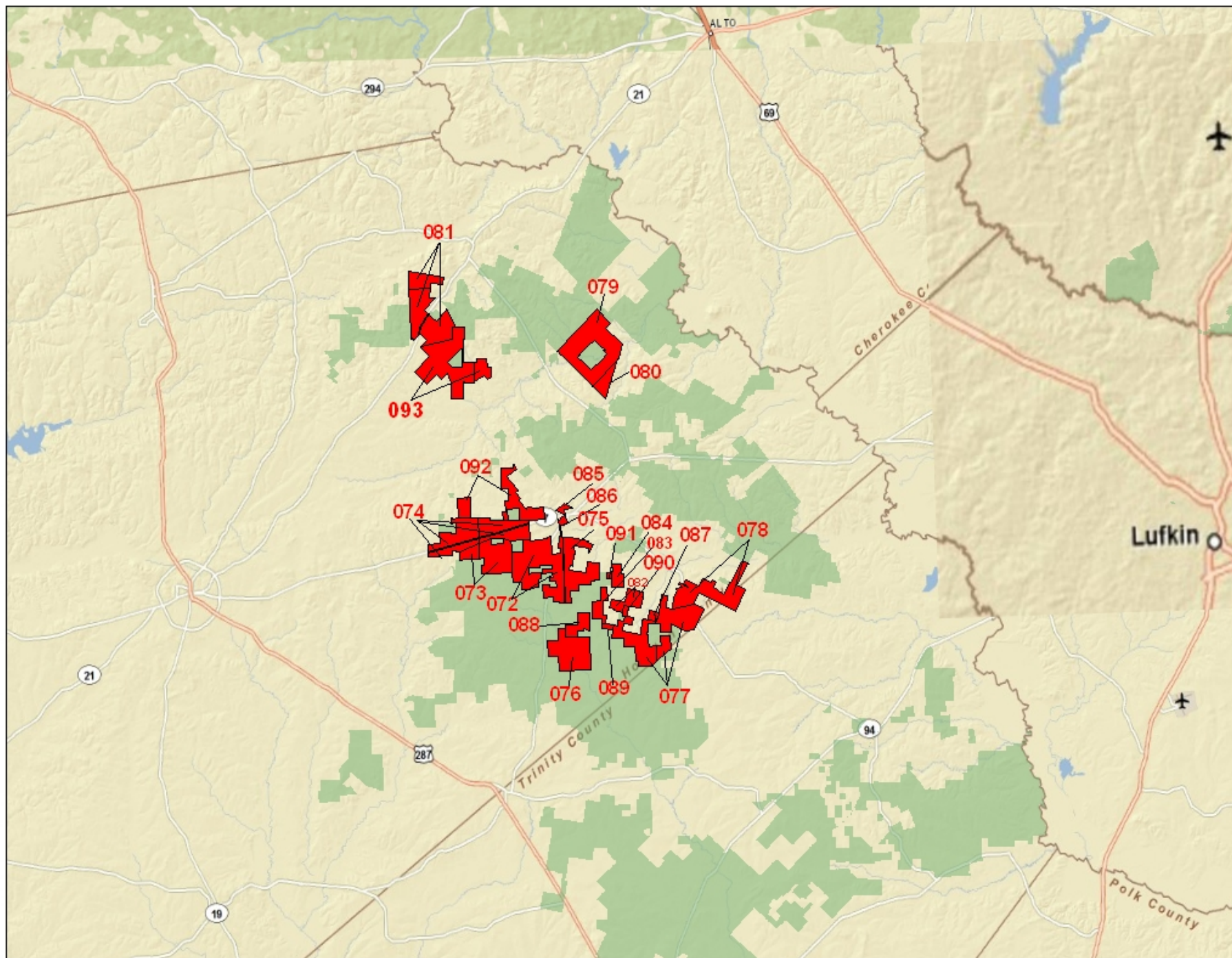
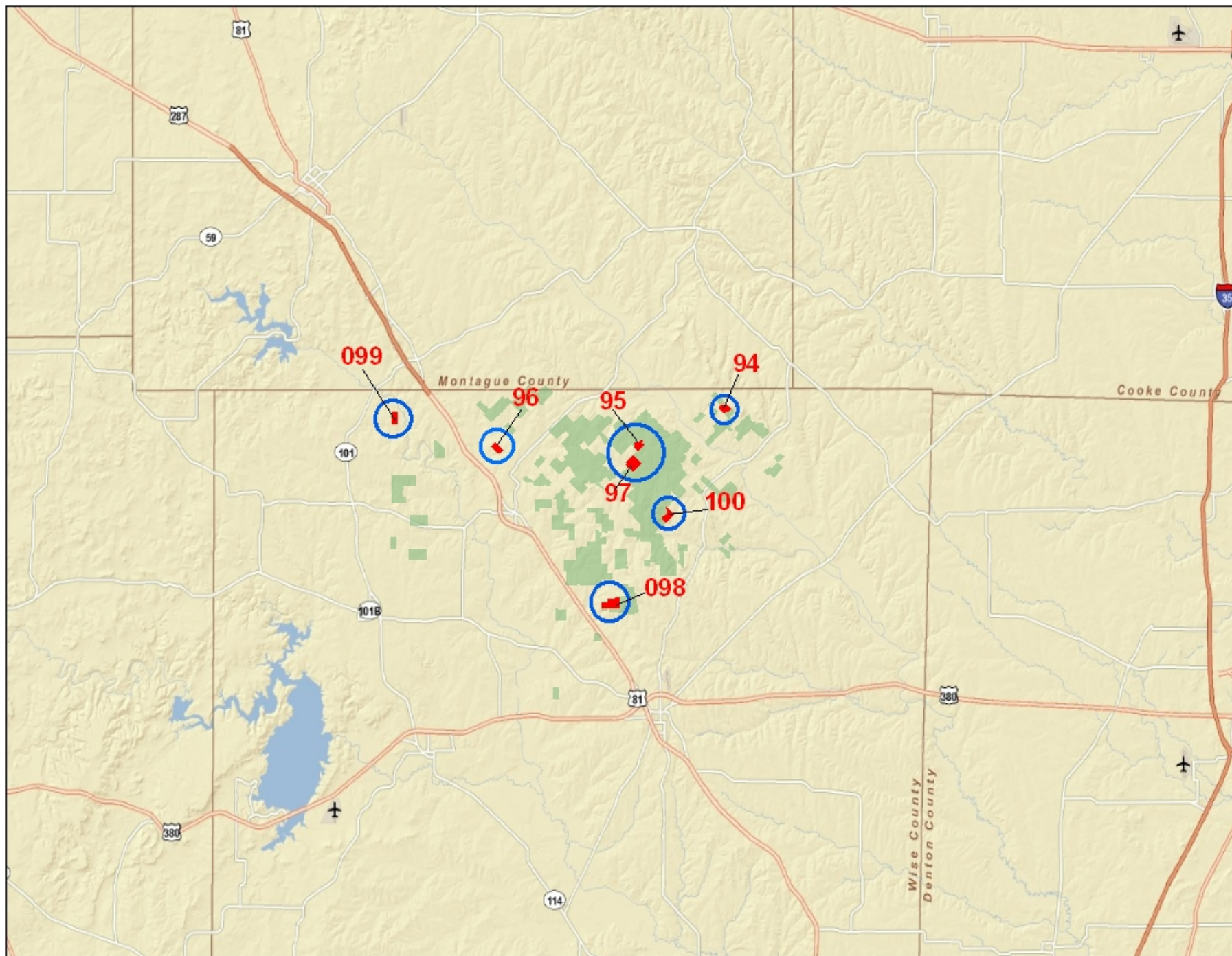


Figure 4. Wise County nominated parcels.



Appendix 3. Biological Evaluation.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

OKLAHOMA FIELD OFFICE

7906 E. 33rd St., Suite 101

TULSA, OK 74145-1352

<http://www.blm.gov>



RE: Biological Evaluation for the April, 2013 Houston County, Texas Lease Sale

TXNM 66745 QUAD NO. 3195142

(DOI-BLM-NM-040-2013-003).

The Bureau of Land Management's (BLM) environmental assessment (EA) for this project contains all pertinent information regarding the specific characteristics of the proposed leasing of federal oil & gas minerals. The purpose of this report is to document BLM's "No Effect" for threatened & endangered species based on the administrative action on making the proposed parcels available for leasing.

Threatened and Endangered Species

The purpose of the Endangered Species Act (ESA) is to ensure that federal agencies and departments use their authorities to protect and conserve endangered and threatened species. Section 7 of the ESA requires that federal agencies prevent or modify any projects authorized, funded, or carried out by the agencies that are "likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species."

The Service's federally-listed endangered, threatened, proposed, and candidate species for Houston County, Texas consist of Neches River rose-mallow and the red-cockaded woodpecker. The Texas Parks and Wildlife department threatened and endangered species consist of the American peregrine falcon, Bachman's sparrow, Bald Eagle, interior least tern, peregrine falcon, piping plover, red-cockaded woodpecker, wood stork, creek chubsucker, paddlefish, black bear, Louisiana black bear, Rafinesque's big-eared bat, red wolf, Louisiana pigtoe, sandbank pocketbook, southern hickorynut, Texas heelspitter, alligator snapping turtle, Louisiana pine snake, Texas horned lizard, and the timber/canebrake rattlesnake.

Neches River rose-mallow

Habitat: Neches River rose-mallow occurs in open marshy habitats such as sloughs and oxbows, and occasionally on river terraces and sand bars. It usually grows in standing rather than flowing water in seasonally wet soils that are flooded in late winter to spring and dry out at the surface in summer.

Current Distribution: This perennial plant is only known from east Texas at seven naturally occurring locations in Cherokee, Harrison, Houston, and Trinity counties plus three reintroduction sites in Houston County on the Davy Crockett National Forest and one research population in Nacogdoches County on Stephen F. Austin State University land.

Surveys must be conducted when conditions are appropriate to detect the plant. Flowering June-August

Red-cockaded woodpecker

Habitat: Open pine forests with large, widely-spaced older trees provide essential habitat for the red-cockaded woodpecker.

Current Distribution: The red-cockaded woodpecker can be found in the Pineywoods of east Texas.

Red-cockaded woodpeckers are endangered because the open forests with big, old pine trees have been replaced by forests with younger, smaller pines. Also, periodic natural fires, which historically kept the pinewoods open, have been suppressed since settlement. Periodic fire is needed to control the brushy understory and keep the pinewoods open. In 1994, an estimated 925 red-cockaded woodpeckers lived in Texas.

American Peregrine Falcon

Habitat: Occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Current Distribution: Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south.

Interior Least Tern

Habitat: Nesting habitat of the Interior Least Tern includes bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with rivers and reservoirs. The birds prefer open habitat, and tend to avoid thick vegetation and narrow beaches. Sand and gravel bars within a wide unobstructed river channel, or open flats along shorelines of lakes and reservoirs, provide favorable nesting habitat. Nesting locations are often at the higher elevations away from the water's edge, since nesting usually starts when river levels are high and relatively small amounts of sand are exposed.

Current Distribution: Today, the Interior Least Tern continues to breed in most of the major river systems, but its distribution is generally restricted to the less altered and more natural or little disturbed river segments. In Texas, Interior Least Terns are found at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, on the Prairie Dog Town Fork of the Red River in the eastern Panhandle, and along the Red River (Texas/Oklahoma boundary) into Arkansas.

Piping Plover

Habitat: Open sandy beaches, especially above tideline, and alkalai flats.

Current Distribution: Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats.

Wood Stork

Habitat: Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries).

Current Distribution: Breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960.

Bachman's Sparrow

Habitat: Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards.

Current Distribution: Remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub.

Creek Chubsucker

Habitat: Small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, upstream creeks.

Current Distribution: Tributaries of the Red, Sabine, Neches, Trinity, and San Jacinto rivers.

Paddlefish

Habitat: Paddlefish like to live in slow moving water of large rivers or reservoirs, usually in water deeper than four feet (130cm).

Current Distribution: The native range of paddlefish includes the Mississippi River basin from New York to Montana and south to the Gulf of Mexico. Historically in Texas, paddlefish lived in the Red River's tributaries, Sulphur River, Big Cypress Bayou, Sabine River, Neches River, Angelina River, Trinity River, and San Jacinto River.

Black Bear

Habitat: Bottomland hardwoods and large tracts of inaccessible forested areas.

Current Distribution: Formerly common throughout most of the state, is now surviving in remnant populations in portions of the Trans-Pecos.

Due to field characteristics similar to Louisiana Black Bear.

Louisiana Black Bear

Habitat: Bottomland hardwoods and large tracts of inaccessible forested areas.

Current Distribution: Possible as transient in east Texas.

Rafinesque's Big-Eared Bat

Habitat: Occurs in forested regions largely devoid of natural caves. Its natural roosting places are in hollow trees, crevices behind bark, and under dry leaves. It has been observed most frequently in buildings, both occupied and abandoned. Texas specimens have been captured in barns and abandoned wells.

Current Distribution: A bat of the southeastern United States, Rafinesque's big-eared bat reaches the westernmost portion of its range in the pine forests of East Texas.

Red Wolf

Habitat: The red wolf (*Canis rufus*) was once found throughout the eastern half of the state. It has now been extirpated from the wild, with the only known remnants of the population now in captive propagation.

Current Distribution: Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies

Louisiana Pigtoe

Habitat: Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments.

Current Distribution: Sabine, Neches, and Trinity (historic) River basins.

Sandbank Pocketbook

Habitat: Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms.

Current Distribution: East Texas, Sulfur south through San Jacinto River basins; Neches River.

Southern Hickorynut

Habitat: Medium sized gravel substrates with low to moderate current.

Current Distribution: Neches, Sabine, and Cypress river basins.

Texas Heelsplitter

Habitat: Quiet waters in mud or sand and also in reservoirs.

Current Distribution: Sabine, Neches, and Trinity River basins.

Alligator Snapping Turtle

Habitat: Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation. Active March-October; breeds April-October.

Current Distribution: Has been reported from almost all river systems in the Suwannee River in Florida to the San Antonio River in Texas.

Louisiana Pine Snake

Habitat: Mixed deciduous-longleaf pine woodlands. Breeds April-September.

Current Distribution: The Louisiana Pine Snake historically occurred in portions of west-central Louisiana and extreme east-central Texas. This area roughly coincides with a disjunct portion of the longleaf pine ecosystem situated west of the Mississippi River. The species is currently extant in a small portion of the historical range.

Texas Horned Lizard

Habitat: Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Breeds March-September.

Current Distribution: Texas horned lizards range from the south-central United States to northern Mexico, throughout much of Texas, Oklahoma, Kansas and New Mexico.

Timber/Canebrake Rattlesnake

Habitat: Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto.

Current Distribution: Eastern half of the state.

According to above information all or portions of these leases could contain Federal and/or state listed threatened or endangered species or/and their habitats. Any proposed surface disturbing activity may require an inventory and consultation with the Service and/or the state wildlife agency. The consultation could take up to 180 days to complete. Surface occupancy could be restricted or not allowed as a result of the consultation. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

Wetland and Riparian Habitat

Wetland habitats provide important wintering and migrational habitat for Central Flyway Birds. Wetlands also provide a link between land and water and are some of the most productive ecosystems in the world. Two executive orders, both issued in 1977 under the Carter Administration, pertain to consultation and avoidance of wetland impacts. Executive Order (EO)

11990 on the Protection of Wetlands provides opportunity for early review of Federal agency plans regarding new construction in wetland areas. It also urges all Federal agencies to avoid supporting, assisting, or financing new construction in wetlands unless there is "no practicable alternative." EO 11988: Floodplain Management - an order given by President Carter in 1977 to avoid the adverse impacts associated with the occupancy and modification of floodplains.

U.S. Fish and Wildlife Service (Service) National Wetlands Inventory map showed no wetlands or riparian habitats within the lease sale parcel. However, several creeks and stock ponds are located within the lease sale parcel. It is understood that wetland and riparian habitats will not be impacted by exploratory work regarding this lease parcel. If any pipeline corridor crosses any creek/tributary or any other type of water course it will require boring under and not trenching through. The BLM Wildlife Resource General Conditions of Approval (WRCOAs) #3 **Pipelines and Wetlands:** Bore under any encountered wetlands for the purpose of pipeline installation. Trenching will not be used to install any pipeline through a wetland or to cross any creek. Additionally, Best Management Practices (BMPs) (i.e. silt fencing, haybales, etc.) are required to minimize sediment and run-off from entering into associated water courses or stock ponds during operations.

Migratory Birds

Executive Order (EO) 13186, 66 Fed. Reg. 3853, (January 17, 2001) identifies the responsibility of federal agencies to protect migratory birds and their habitats, and directs executive departments and agencies to undertake actions that will further implement the Migratory Bird Treaty Act (MBTA). Under the MBTA, incidental, unintentional, and accidental take, killing, or possession of a migratory bird or its parts, nests, eggs or products, manufactured or not, without a permit is unlawful. EO 13186 includes a directive for federal agencies to develop a memorandum of understanding (MOU) with the Service to promote the conservation of migratory bird populations, including their habitats, when their actions have, or are likely to have, a measurable negative effect on migratory bird populations. Whereas the MBTA only protects migratory birds, EO 13186 provides for the protection of both migratory birds and migratory bird habitat.

The NM-201304-085 in Houston County is located within the Bird Conservation Region 25, West Gulf Coastal Plain/Ouachitas. Twenty-eight birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found nine species from the (Weches Route) survey list, little blue heron, red-headed woodpecker, chuck-will's-widow, wood thrush, prairie warbler, Swainson's warbler, Kentucky warbler, painted bunting and the orchard oriole.

Breeding Bird Survey Weches Route		
Located near the lease sale parcel		
Wetland Associated	Grasslands	Woodland or Scrub
Little blue heron		Red-headed woodpecker
		Chuck-will's-widow
		Wood Thrush
		Prairie warbler
		Swainson's warbler
		Kentucky warbler
		Painted bunting
		Orchard oriole

Therefore, per the MOU between BLM and the Service, entitled "To Promote the Conservation of Migratory Birds," the following temporal and spatial conservation measures must be implemented as part of the Conditions of Approval with a permit to drill:

- 1) Avoid any take of migratory birds and/or minimize the loss, destruction, or degradation of migratory bird habitat while completing the proposed project or action.
- 2) If the proposed project or action includes a reasonable likelihood that take of migratory birds will occur, then complete actions that could take migratory birds outside of their nesting season. This includes clearing or cutting of vegetation, grubbing, etc. The primary nesting season for migratory birds varies greatly between species and geographic location, but generally extends from early April to mid-July. However, the maximum time period for the migratory bird nesting season can extend from early February through late August. Strive to complete all disruptive activities outside the peak of migratory bird nesting season to the greatest extent possible.
- 3) If no migratory birds are found nesting in proposed project or action areas immediately prior to the time when construction and associated activities are to occur, then the project activity may proceed as planned.

Additionally, the proposed lease sale parcels and all subsequent activities resulting from it are subject to all state and federal regulations and proposed lease stipulations designed to reduce environmental risks. Lease stipulations are legally binding restrictions and operating requirements that become part of lease contracts. Following are additional stipulations that are required of the six individual parcels, if permitted.

The NM-201304-085 Houston County, TX. parcel will have stipulation WO-ESA-7: Threatened and Endangered Species protection.

This lease sale, in and of itself, has no impact on threatened or endangered species, wetland or migratory birds to analyze or consult on. Additionally, site-specific analysis and mitigation will occur once the parcels are leased and an Application for Permit to Drill is submitted.

Based on all the information discussed above the biological determination of effect for federally listed species regarding leasing of these parcels is **“NO EFFECT”**.

_____;	<u>10/23/2012</u> .
Becky Peters Wildlife Biologist	Date