

U.S. Department of the Interior

Bureau of Land Management

Decision Record
Finding of No Significant Impact
Environmental Assessment
DOI-BLM-NM-040-2013-02-EA
April, 2013

April 2013 Competitive Oil and Gas Lease Sale

Custer, Dewey, Roger Mills and Creek Counties, Oklahoma

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-040-2013-02-EA
Location: Custer, Dewey, Roger Mills and Creek Counties, Oklahoma.**

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 within this EA have been previously analyzed in the Oklahoma Resource Management Plan (RMP), 1994, 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
DOI-BLM-NM-040-2013-02-EA**

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), as 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 five (5) parcels nominated for the April 2013 Competitive Oil and Gas Lease Sale that involved Federal minerals 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.

The parcel 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. 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 Oklahoma Resources Management Plan (RMP) (January 1994), as amended and Final Environmental Impact Statement (FEIS) (October 1993), as amended. The RMP, as amended, described specific split estate tracts in Oklahoma 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 fall within these areas and the applicable stipulations identified in the RMP would be attached to each parcel, if leased, leasing the parcel would be in conformance with the Oklahoma 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 (1994), 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 Oklahoma 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, 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 and archeological 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

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

Wildlife

- 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 Oklahoma RMP (1994), 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 five (5) 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 five (5) nominated parcels of federal minerals covering 779.08 acres administered by OFO. The five (5) proposed lease parcels are located on private surface in Kay, Custer, Dewey, Roger Mills and Creek Counties, Oklahoma. Standard terms and conditions as well as stipulations listed in the Oklahoma RMP (1994), as amended, would apply. A complete description of these parcels, including any stipulations, is provided in Table 1.

Floodplains occur within parcel -067, -068, -069 and -071. The Army Corp of Engineers No Surface Occupancy stipulation will be attached to parcels -067 and -071. Lease stipulation ORA-1 for Floodplain Protection will be attached to parcels -068 and -069. ORA-1 states that, "All or portions of the lands under this lease lie in and or adjacent to a major watercourse and are subject to periodic flooding. Surface occupancy of these areas will not be allowed without the specific approval, in writing, of the BLM." In addition to ORA-1, the BLM identified the need to develop a Floodplain Protection Lease Notice that would also be attached to these two parcels. This notice would inform the lessee and operator that surface occupancy of these areas and surface disturbance within up to 200 meters of the outer edge of the floodplain may not be allowed in order to protect the integrity and functionality of the floodplain and associated watercourse. Furthermore, controlled surface use requiring special mitigation measures may be required and will be developed during the application for permit to drill. The new lease notice will be incorporated into the OFO RMP through plan maintenance. See Appendix 4 for the specific wording of the lease notice.

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 Oklahoma 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
<p><u>NM-201304-067</u></p> <p>T. 0280N, R. 0030E, IM PM, OK Sec. 036 Lots 2-4</p> <p>Kay County, OK</p>	<p><u>Other Surface Management (OSM):</u> Army Corp of Engineers</p> <p><u>Lease with the following Stipulations:</u> COE-SS-1A: No Surface Occupancy</p>	84.750
<p><u>NM-201304-068</u></p> <p>T. 0150N, R. 0140W, IM PM, OK Sec. 005 ACC & RIP TO Lot 4</p> <p>Custer County, OK</p>	<p><u>Lease with the following Stipulations:</u> LN: Floodplain Protection – Pending; Under Development ORA-1: Floodplain Protection ORA-2:Wetland/Riparian Protection WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation</p>	113.220
<p><u>NM-201304-069</u></p> <p>T. 0180N, R. 0160W, IM PM, OK Sec. 025 ACC & RIP TO Lot 1</p> <p>Dewey County, OK</p>	<p><u>Lease with the following Stipulations:</u> LN: Floodplain Protection – Pending; Under Development ORA-1: Floodplain Protection ORA-2:Wetland/Riparian Protection WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation</p>	21.110
<p><u>NM-201304-070</u></p> <p>T. 0120N, R. 260W, IM PM, OK Sec. 008 SW</p> <p>Roger Mills County, OK</p>	<p><u>Lease with the following Stipulations:</u> ORA-3: Season of Use – Lesser Prairie Chicken WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation</p>	160.000
<p><u>NM-201304-071</u></p> <p>T. 0170N, R. 0090E, IM PM, OK Sec. 014 E2 Sec. 023 N2NE</p> <p>Creek County, OK</p>	<p><u>Other Surface Management (OSM):</u> Army Corp of Engineers</p> <p><u>Lease with the following Stipulations:</u> COE-SS-1A (Heyburn Lake): No Surface Occupancy</p>	400.00

2.3 Alternative C – Preferred Alternative

The Preferred Alternative is to lease four (4) nominated parcels of federal minerals covering 694.33 acres and defer one (1) nominated parcel covering 84.750 acres administered by OFO.

NM-2013-067 is recommended for deferral until a more comprehensive title report is received from the Army Corps of Engineers.

The Preferred Alternative, therefore, is to lease the remaining parcels as presented under the Proposed Action Alternative.

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.

Kay County

Kay County is in the north-central part of Oklahoma. It is bounded on the south by Noble County, on the east by Osage County, on the west by Grant County, and on the north by the state of Kansas. It has an area of 945 square miles (604,852 acres). Topography ranges from nearly level flood plains along the rivers to steep uplands. The general slope is towards the south and southeast. Elevation ranges from about 920 feet, where the Arkansas River leaves the southeastern part of the county, to about 1,290 feet in the northeastern part of the county.

The county is served by the Burlington Northern/Santa Fe railroad and by airport facilities at Ponca City, Newkirk, and Blackwell. It is also served by Interstate 35, which extends along the western portion of the county, by three federal highways, by two State highways, and numerous county roads. Some of the county roads have been surfaced and are suitable for all-weather travel.

Custer County

Custer County is in the west-central part of Oklahoma. It is bounded on the north by Dewey County, on the south by Washita County, on the east by Blaine and Caddo Counties, and on the west by Roger Mills and Beckham Counties. It has an area of 1,003 square miles (641,626 acres). Topography ranges from nearly level flood plains along the rivers to steep uplands. The general slope is toward the southeast. Elevation ranges from about 1,450 feet where the Washita River leaves the county to about 1,900 feet in the northwest corner of the county.

The county is served by airport facilities at Clinton, Weatherford, and Thomas. It is also served by Interstate 40, which extends east and west; by Federal Highway 183, which extends north and south; by six State highways; and by numerous county roads. Some of the county roads have been surfaced and are suitable for all-weather travel.

Dewey

Dewey County is located in west-central Oklahoma and is bordered by Woodward and Major counties on the north, Blaine County on the east, Custer County on the south, and Ellis and Roger Mills counties on the west. Dewey County is comprised of 1,008.26 square miles of land and water.

The county is served by four Federal highways, three state highways and numerous county roads. Some of the county roads have been surfaced and are suitable for all-weather travel.

Roger Mills

Roger Mills County is a western border county, lying about midway between the northern and southern State lines. The Canadian River forms the northern boundary of the county, separating it from Ellis County. Dewey and Custer Counties adjoin it on the east, Beckham County on the south and on the west by Texas. The county is about 36 miles long from east to west, and averages about 32 miles wide from the north to south. It has an area of 1,135 square miles (726,400 acres).

Roger Mills County lies within the Great Plains and its topographic features are the result of erosion and grading. Its general slope is toward the east. It includes areas of smooth upland remnants of a former high plain which covered the entire region, and two areas of lowland, the products of erosion, lying along the two main streams.

Creek County

Creek County comprises approximately 972 square miles of east-central Oklahoma between the Cimarron River and Deep Fork. It is bordered by Pawnee County on the north, Tulsa and Okmulgee counties on the east, Okfuskee County on the south, and Lincoln and Payne Counties on the west. Its northeast corner is barely one mile south of the limits of the city of Tulsa. The principal towns are Drumright, Bristow, and Sapulpa. Topography of the county is relatively level with a maximum relief of about 450 feet, between the exit of Deep Fork, in the southeast part of the county, to the tops of the highest hills, northeast of Shamrock.

The county is served by Interstate 44, one Federal highway, and seven State highways, along with numerous county roads. Some of the county roads have been surfaced and are suitable for all-weather travel.

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 Oklahoma's 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 EPA has not designated any non-attainment areas within Oklahoma. The area of the 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 Wichita Mountains Wilderness Area is the only designated Class I area in Oklahoma. Class I areas are afforded the highest level of protection by the Clean Air Act and include all international parks, national wilderness areas and national memorial parks >5,000 acres, and national parks >6,000 acres in size which were in existence on August 7, 1977.

Within each county, 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, production, and distribution; manufacturing; and agriculture.

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

For western Oklahoma, no lead is available, however, lead concentrations are expected to be low in rural areas are therefore not monitored. "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 in western and eastern Oklahoma (EPA, 2012)

Pollutant	Design Value	Averaging period	NAAQS
O ₃	0.070 ppm (western)	8-hour	0.075 ppm ¹
	0.077 ppm (eastern)		

PM _{2.5}	9.5 µg/m ³ (western)	Annual	12.0 µg/m ^{3,2}
	10.8 µg/m ³ (eastern)		
PM _{2.5}	20.0 µg/m ³ (western)	24-hour	35 µg/m ^{3,3}
	23.0 µg/m ³ (eastern)		
PM ₁₀	0 exceedances/year (western)	24-hour	150 µg/m ^{3,5}
	2 exceedances/year (eastern)		
Pb	No data available (western)	Rolling 3-month average	0.15 µg/m ³
	0.01 µg/m ³ (eastern)		
NO ₂	10 ppb (western)	Annual	53 ppb
	9 ppb (eastern)		
NO ₂	49 ppb (western)	1-hour	100 ppb ³
	No data available (eastern)		
SO ₂	5 ppb (western)	1-hour	75 ppb ⁶
	65 ppb (eastern)		
CO	1.0 ppm (western)	8-hour	9 ppm ⁴
	1.4 ppm (eastern)		
CO	1.3 ppm (western)	1-hour	35 ppm ⁴

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

⁴ Not to be exceeded more than once per year

⁵ Not to be exceeded more than once per year on average over 3 years

⁶ 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years

Mean AQI values for western Oklahoma were generally in the good range (AQI<50) in 2011. 73% of the days in 2011 were classified as “good”, 25% were classified as “moderate”, and 2% were classified as “unhealthy for sensitive groups”. For eastern Oklahoma, mean AQI values were generally in the

moderate range (AQI =54) for 2011. 45% of the days in 2011 were classified as “good”, 48% were classified as “moderate”, 7% were classified as “unhealthy for sensitive groups”, and 1 day was classified as “unhealthy”.

Figure 2. Mean and Max AQI Values (EPA, 2012a)

2011 AQI Values		
	Median AQI	Max AQI
Western OK	42	119
Eastern OK	54	158

The air quality index in eastern Oklahoma annually reaches “unhealthy for sensitive groups” on a number of days, while in western Oklahoma, the “unhealthy for sensitive groups” is less likely to occur. Over the past decade, there is no trend to the number of days that are classified “unhealthy for sensitive groups” and “unhealthy”, as shown in Figure 3. The number of “unhealthy” days per year has not exceeded 2 in eastern Oklahoma in the past decade. No days have been classified as “unhealthy” in western Oklahoma.

Figure 3. Number of Days classified as “unhealthy for sensitive groups” and “unhealthy” (EPA, 2012a)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Western OK	0	4	0	4	3	0	0	0	0	7
Eastern OK	26	22	19	27	26	7	15	5	3	22

3.1.2 Climate

Oklahoma’s climate ranges from humid subtropical in the east to semi-arid in the west. Warm, moist air moving northward from the Gulf of Mexico often exerts much influence, particularly over the southern and eastern portions of the state, where humidity, cloudiness and precipitation are resultantly greater than in the western and northern sections. Summers are long and usually quite hot. Winters are short and less severe than those of the more northern Plains states. Periods of extreme cold are infrequent, and those lasting more than a few days are rare.

The mean annual temperature over the state ranges from 62°F along the Red River to about 58°F along the northern border. It then decreases westward to 56°F in Cimarron County. Temperatures of 90°F or greater occur, on average about 60-65 days per year in the western panhandle and the northeast corner of the state. The average is about 115 days in southwest Oklahoma and about 85 days in the southeast. Temperatures of 100°F or higher occur, frequently during some years, from May through September, but very rarely in April and October. With 30-40 days at or above 100°F, western Oklahoma experiences more extreme summer temperatures than elsewhere in the state. Both the Panhandle and eastern Oklahoma average about 15 days above the century mark. The increased humidity in the east, however, adds to that section of the state's summertime misery.

Temperatures of 32°F or less occur an average of 60 days per year in the southeast. This value increases to about 110 days per year where the panhandle joins the rest of the state, and to about 140 days in the western panhandle.

The dominant feature of the spatial distribution of rainfall across Oklahoma is a sharp decrease in rainfall from east to west. Although precipitation is quite variable on a year-to-year basis, average annual precipitation ranges from about 17 inches in the far western panhandle to about 56 inches in the far southeast. Only the summer months of July and August see a substantial relaxation of this distribution. Average annual snowfall increases from less than two inches in the extreme southeast to nearly 30 inches in the western panhandle. The frequency of snow events also increases sharply along the same gradient.

Tornados are a particular hazard in Oklahoma. Since 1950, an average of 52 tornados have been observed annually within the state's borders. Tornados occur at any time of the year, but are most frequent during springtime.

The prevailing winds are from the south to southeast throughout most of the state from the spring through autumn months. These prevailing winds typically are from the south to southwest in far western Oklahoma including the panhandle. The winter wind regime is roughly equally split between northerly and southerly winds.

In addition to the air quality information in the Oklahoma 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

Oklahoma’s varied climate and topography 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 have produced soils low in phosphorus and potassium, while at the same time being moderately to strongly acidic. Western soils, being developed in an area of lesser rainfall are usually light red in color, less leached than eastern soils, moderately acidic, and low in phosphorous and nitrogen. Soils in the panhandle of Oklahoma contain large amounts of lime, are neutral to alkaline at the surface, with accumulations of calcium carbonate found at shallow depths. Nitrogen levels tend to

be low, but do not contribute to being as much of a limiting factor in production and management as wind erosion.

The Natural Resource Conservation Service (NRCS) has surveyed the soils in the proposed parcel areas. The soil map units represented in the project area are in Table 3.

Table 2. Web soil survey results of soil types found within the proposed parcels.

Parcel	Soils			
	Soil Name	Description	Acres in area	% in area
NM-2013-04-068 T. 015 N, R.014 W Section 005 Custer County	Gracemore and Ezell soils	0-1 percent slope;	109.4	83.2%
	Water		3.5	2.6%
	Westola fine sandy loam	0-1 percent slope;	15.0	11.4
	Lincoln loamy fine sand	0-1 percent slopes; somewhat excessively drained; calcareous sandy alluvium parent material; about 60-80" to water table; high to very high water capacity; frequent flooding and no ponding	3.7	2.8%
NM-2013-04-069 T. 018 N, R. 014 W Section 005 Dewey County	Lincoln fine sandy loam		15.9	73.1%
	Water		5.9	26.9%
NM-201304-070 T. 012 N, R. 026 W Sec. 008 SW Roger Mills County	Nobscot and Delwin soils	3 to 8 percent slopes; well drained; sandy and loamy alluvium and/or eolian deposit parent material; >80" to water table; low available water capacity; no frequency of flooding or ponding	160.8	100%
NM-201304-071 T. 017 N, R. 009 E Section 14 E2; Section 23 N2NE Creek County	Darnell-Niotaze complex 5-12% slopes 12-20% slopes	Well drained; loamy residuum weathered from sandstone parent material; >80" to water table; very low water capacity; no frequency of flooding or ponding	5-12% = 57.4 12-20% = 76.4	5-12% = 14.3 12-20% = 19.1%
	Konawa and Gasil soils 3-5% slopes 5-8% slopes	Well drained; loamy and sandy alluvium parent material; >80" to water table; moderate available water capacity; no frequency of flooding or ponding	3-5% = 37.1 5-8% = 15.6	3-5% = 9.3% 5-8% = 3.9%
	Ashport silt loam	0 to 1 percent slopes; well drained; fine-silty alluvium parent material; >80" to water table; high water capacity; frequently flooded and no frequency of ponding	37.9	9.5%

Parcel	Soils			
	Soil Name	Description	Acres in area	% in area
	Dale silt loam	0 to 1 percent slopes; well drained; loamy alluvium parent material; >80" to water table; high water capacity; rarely flooded and no frequency of ponding	88.7	22.1%
	Pulaski fine sandy loam	0 to 1 percent slopes; well drained; coarse-loamy alluvium parent material; >80" to water table; high water capacity; occasionally flooding and no ponding	13.9	3.5%
	Stephenville-Darnell complex	5 to 8 percent slopes; well drained; loamy residuum weathered from sandstone parent material; >80" to water table; low water capacity; no frequency of flooding or ponding	7.2	1.7%
	Port fine sandy loam	0 to 1 percent slopes; well drained; calcareous loamy alluvium parent material; >80" to water table; high water capacity; occasionally flooded and no frequency of ponding	10.1	2.5%
	Water		56.4	14.1%

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 Darnell-Niotaze complex have a rating of 0 tons per acre per year indicating no susceptibility to wind erosion, while the Ashport silt loam and Dale silt loam have slightly higher ratings of 48 and 56 tons per acre per year, respectively, indicating slight susceptibility to wind erosion. The Gracemore and Ezell soils, Westola fine sandy loam, Konawa and Gasil soils, Pulaski fine sandy loam, Stephenville-Darnell complex, and Port fine sandy loam each have a rating of 86 tons per acre per year indicating higher susceptibility to wind erosion. The Lincoln loamy fine sand have a rating of 134 tons per acre per year indicating extremely high susceptibility to wind erosion. The Nobscot and Delwin soils have a rating of 220 tons per acres per year indicating extremely high susceptibility to wind erosion.

3.3 Water Resources

3.3.1 Surface water

Oklahoma's abundant surface water resources include rivers, streams, and man-made reservoirs. Oklahoma has 12 major river basins: the Main Stem of the Arkansas, Salt Fork of the Arkansas, Cimarron, Verdigris, Neosho, Illinois, North Canadian, Deep Fork, Red-main stem, North Fork Red, and the Washita. Surface water resources have been developed within these basins through construction of reservoirs.

The McLellan-Kerr Arkansas River Navigation System provides year round ocean access for barge traffic as far north as Tulsa's Port of Catoosa.

Kay County

Drainage over the county as a whole is good, and practically every square mile of land is either traversed by a drainage way or drained by a perceptible slope toward some small stream. In the vicinity of Bodock; however, and in scattered areas in the western and northwestern parts of the county drainage has not become so well established as in the more rolling areas; the surface is level and water stands on the surface for some time after heavy rains.

The entire county is drained by the Arkansas River and its tributaries, the more important of which are the Salt Fork of the Arkansas, the Chikaskia River, and Beaver, Bois d'Arc, Duck, Bitter, and Deer Creeks. The streams have fairly rapid currents and are actively cutting their channels deeper.

A portion of the proposed lease parcel lies under Kaw Lake. The reservoir covers approximately 17,040 acres and is the seventh largest lake in Oklahoma by surface area. At normal levels the lake holds 428,600 acre feet of water, the ninth largest lake in capacity in Oklahoma. The lake lies mostly in Kay County and partially in Osage County. A 9,466 foot long and 121 feet high dam was used to create the reservoir and was authorized by Congress in the Flood Control Act of 1962. A hydroelectric plant was completed in 1989 and generate approximately 104 gigawatt hours of energy annual and provides power for over 35 municipal electrical systems in Oklahoma and southern Kansas.

The proposed lease parcel lies within the Kaw Lake (USGS 11060001) watershed. Within the entire watershed, 52.3 miles of rivers and streams have been impaired by enterococcus bacteria, 14.4 miles by sulfates, 30.7 miles by turbidity, 14.4 miles by fecal coliform, 37.8 miles by Escherichia coli (E. Coli), and 14.4 miles by total dissolved solids. Approximately 17,040 acres of lakes, reservoirs, and ponds (Kaw Lake) have been impaired by turbidity and dissolved oxygen.

Custer County

Two rivers flow southeastward through Custer County: the Canadian River in the northeastern corner, and the Washita River in the southwestern part. Deer Creek and Barnitz Creek flow southeasterward into the Canadian and Washita Rivers in the eastern and central parts of the county, respectively, and have wide valleys. Quartermaster Creek, a tributary to the Washita River in the western part of the county, also has a wide valley. Other tributaries to the Washita River include Panther Creek, Oak Creek, Turkey Creek, Beaver Creek and Bear Creek (Fay and Hart 1978).

Water from Foss Reservoir is used by several towns in the area for household use, industry, irrigation, and recreation. More than 150 flood detention reservoirs in the county control flooding and furnish livestock water, irrigation water, and water for recreation. Farm ponds and wells are the major source of livestock water (NRCS 2007a).

The proposed lease parcel lies within the Lower Canadian-Deer (USGS 11090201) watershed. Within the entire watershed, 211.3 miles of rivers and streams have been impaired by enterococcus bacteria, 141.8

miles by sulfates, 37.8 miles by thallium, 75.9 miles by chloride, 71.1 miles by fecal coliform, 123.3 miles by *Escherichia coli* (E. Coli), 37.8 miles by sedimentation/siltation, and 96.3 miles by total dissolved solids. Approximately 260.0 acres of lakes, reservoirs, and ponds (American Horse Lake) have been impaired by dissolved oxygen. A portion of the 38 miles of Canadian River that has been identified as impaired is >0.1 miles from the proposed lease parcel. This section of the river was impaired as a result of chloride, E. Coli, sedimentation/siltation, sulfates, thallium, and total dissolved solids. In previous years, turbidity was also considered an impairment in this reach but has since been attained.

Approximately 0.25 miles of an unnamed tributary of the Canadian River extends through the northern portion of the proposed lease parcel. A second unnamed tributary enters the proposed lease parcel in the southern end of the parcel and flows for about 0.1 miles.

Dewey County

Dewey County is drained by the North Canadian River and its tributaries in the northeastern part. The central and eastern portion is drained by South Canadian and the extreme southern and southwestern part by the tributaries of the Washita River.

The proposed lease parcel lies within the Lower Canadian-Deer (USGS 11090201) watershed like the Custer County parcel. The same impairments as listed for the watershed in Custer County apply in Dewey County. Larger stretches of the Canadian River and within miles of the proposed lease parcel.

Roger Mills County

Approximately three-fourths of the county is drained by the easterly flowing Washita River, which flows through the central part. The Canadian River drains a strip averaging about 5-6 miles wide along the northern boundary. Sweetwater Creek drains a small tract in the southwestern part of the county, and small areas along the southern boundary are drained by other tributaries into the Red River.

The proposed lease parcel lies within the Washita Headwaters (USGS 11130301) watershed. Within the entire watershed, 51.6 miles of rivers and streams have been impaired by enterococcus bacteria, 18.6 miles by fish biassessments, 33.0 miles by sulfates, 18.6 miles by thallium, 95.2 miles by turbidity, 51.6 miles by fecal coliform, 18.6 miles by lead, 51.6 miles by *Escherichia coli* (E. Coli), 18.6 miles by sedimentation/siltation, and 33.0 miles by total dissolved solids. From the available information it is unknown what extent of impaired waters are near the proposed lease parcel.

Creek County

The north part of Creek County is drained by Cimarron River, Polecat Creek, and other tributaries of the Arkansas River; all join the Arkansas outside of Creek County. The south part is drained by Deep Fork, and even the waters of Deep Fork ultimately reach the Arkansas east of Eufaula, by way of North Canadian and Canadian Rivers. The principal tributaries are Tiger, Buckeye, and Salt Creeks. The principal tributaries of Polecat Creek, from the north are Figure Eight, Brown's, Little Polecat, and Rock Creeks; from the south they are Dog, Mosquito, Rowland, Neversweat, Mountain, Euchee, Skull, and Childress Creeks. Principal tributaries of Deep Fork, from the north are Salt and Little Deep Fork Creeks.

The proposed lease parcel lies within the Polecat-Snake (USGS 11110101) watershed. Within the entire watershed, 7.3 miles of rivers and streams have been impaired by cadmium, 110.6 miles by enterococcus bacteria, 3.0 miles by fish bioassessments, 5.7 miles by sulfates, 71.1 miles by thallium, 71.1 miles by oil and grease, 29.2 miles by turbidity, 10.2 miles by chloride, 28.9 miles by fecal coliform, 10.9 miles by diazinon, 40.1 miles by dissolved oxygen, 48.7 miles by Escherichia coli (E. Coli), and 10.2 miles by total dissolved solids. Approximately 880.0 acres of lakes, reservoirs, and ponds have been impaired by color and enterococcus bacteria, 110.0 acres by pH, 1,192.0 acres by turbidity, 1,875.0 acres by dissolved oxygen. From the available information the proximity of the proposed lease parcel to the impaired waters is unknown.

3.3.2 Groundwater

Groundwater can be found throughout most of the state and is considered one of the states' most valuable resources. Groundwater supplies as much as 48% of the water used in Oklahoma from 12 major groundwater basins. The major groundwater bearing rock formations include sand, gravel, limestone, dolomite, sandstone, and gypsum. Wells yield as much as 2,000 gallons per minute (gpm) in the western part of the state (averaging 300 gpm), while in the eastern part of the state wells average 100 gpm.

Kay County

A portion of Kay County lies over the alluvial and terrace deposits major groundwater basin. This basin yields less 500 gpm. The proposed lease parcel is actually outside of the boundaries of this aquifer. Smaller non-dominate aquifers likely exist.

Custer County

Most of the groundwater in Custer County is derived from precipitation falling directly on the area. Groundwater is the principal source of supply for municipal, industrial, irrigation, and domestic water use. The cities of Clinton and Weatherford are the largest users of groundwater for municipal supply. The development of large wells for irrigation has been primarily in the eastern third of the County and along the bottom lands of the Washita River. Water levels rise and fall in response to variations in recharge to and discharge from the aquifer. During dry periods, natural recharge from the aquifer exceeds the recharge and the water table lowers. Pumping from wells retards the rise in water levels during wet periods and accelerated the decline during dry periods (Fay and Hart 1978).

Groundwater in Custer County accumulated in several water-bearing formation or aquifers. The two major waterbearing formations are the Rush Springs Sandstone, in the eastern part of the county, and the Washita River flood plain both capable of supporting domestic and livestock uses as well as irrigation. Irrigation wells in the Rush Springs Sandstone generally produce 300 to 800 gpm of good-quality water from a depth of 200 to 400 feet. On the Washita River flood plain the production is up to 1,000 gpm and is generally from a depth of less than 100 feet. Wells tapping bedrock aquifers in the western part of the county generally produce sufficient water for livestock and domestic uses (no irrigation), but extended dry periods may reduce well yields. The water quality is generally poorer in the

eastern portion of the county because of higher concentrations of dissolved solids, mainly sulfates (Fay and Hart 1978).

The Rush Springs formation is a massive, fine-grained, poorly-cemented sandstone with some interbedded dolomite, gypsum, and shale. The average recharge rate of the basin, calculated from base-flow discharge measurements, is about 2 inches/year, or about 7% of the average rainfall (Osborn and Hardy 1999)

Dewey County

The proposed lease parcel lies within the alluvial and terrace deposits major groundwater basin. This basin yields less 500 gpm.

Roger Mills County

The proposed lease parcel lies above the Ogallala aquifer. The Ogallala aquifer underlies portions of 10 counties in western Oklahoma. Regionally, it is part of the High Plains aquifer that underlies 174,000 square miles in eight states in the central United States. Groundwater flow in the Ogallala is generally in an easterly direction, but local variations occur due to the effects of topography and the presence of streams.

Natural recharge to the Ogallala occurs primarily as infiltration of precipitation. Recharge also occurs as seepage in streams, subsurface inflow from the High Plains aquifer in Texas, and irrigation return flows. Simulated rates of recharge ranged from 0.06 inches/year to 0.9 inches/year, averaging 0.18 inches/year (Luckey and Becker 1999). Areas overlain by sand dunes or very sandy soil had greater recharge than other areas. Areas cultivated for dry-land crops also had greater recharge. Groundwater levels have been rising at an average of about 0.4 feet per year over the last 20 years. Most of the state's aquifers have been exhibiting similar rising water levels (Belden and Osborn 2002).

Creek County

The Antlers Sandstone aquifer is the predominate aquifer in Creek County. However, the proposed lease parcel does not lie over this aquifer. There is no dominate aquifer below the proposed parcel.

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.

Flooding does occur through the state and varies widely, but generally increases from west to east. Flood damages vary according to floodplain use and extent of development. Many towns and cities in Oklahoma are located on floodplains and have historically experienced flood damages.

Proposed lease parcels -067, -068, -069, -071 lie within a mapped floodplain. Parcel -070 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.

Kay County, OK.

Sec. 36-T28N-R3E

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory map showed Freshwater Emergent, Freshwater Forested/Shrub, Lake, and River, wetland issues within this lease parcel.

Custer County, OK.

Sec. 5-T15N-R14W

The USFWS National Wetlands Inventory map showed Freshwater Forested/Shrub, Riverine, wetland issues within this lease parcel.

Dewey County, OK.

Sec. 25-T18N-R16W

The USFWS National Wetlands Inventory map showed Freshwater Emergent, and Freshwater Forested/Shrub wetland issues within this lease parcel.

Roger Mills County, OK.

Sec. 25-T18N-R16W

The USFWS National Wetlands Inventory Mapper showed no wetland or riparian habitat within 300' of this proposed lease sale parcel. The parcel is located in an agriculture field. It is understood that wetland and riparian habitats will not be impacted by the sale of this lease parcel.

Creek County, OK.

Sec. 14-T17N-R9E

Sec. 23-T17N-R9E

The USFWS National Wetlands Inventory map showed Freshwater Emergent, Freshwater Forested/Shrub, and a Lake wetland issues within these lease parcels.

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 Westola fine sandy loam, 0 to 1 percent slopes, soil type as “All areas are prime farmland.” This soil types make up 15.0 acres (11.4%) of the Custer County proposed lease parcel. Approximately 172.4 acres of the Creek County proposed lease parcel contains soils classified as “All areas are prime farmland,” including Konawa and Gasil soils, Dale silt loam, Pulaski fine sandy loam, Stephenville-Darnell complex, and Port fine sandy loam. All other soil types in each of the proposed lease parcels are identified as “not prime farmland.”

3.6 Heritage Resources

3.6.1 Cultural Resources

Approximately 19,000 archeological sites are recorded in Oklahoma and over 2,500 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 Oklahoma has listed three noxious weeds and has found that they are a public nuisances in all counties across the state and shall be treated, controlled, and eradicated. The three plants are: musk thistle (*Carduus nutans*), Scotch thistle (*Onopordum acanthium*), and Canada thistle (*Cirsium arvense*). Musk thistle can be found on all types of land except deserts, dense forests, high mountains, coastal areas, and newly cultivated fields. It is most often described as occurring on disturbed sites and waste areas, and along roads. Cotton thistle prefers habitats with dry summers, growing best in sandy, sandy clay and calcareous soils which are rich in ammonium salts. It grows in rural places, as well as dry pastures and disturbed fields and prefers natural areas, disturbed sites, roadsides, fields and especially sites with fertile soils, agricultural areas range/grasslands, riparian zones, scrub/shrublands valleys and plains along with water courses. Canada thistle is most common in open, mesophytic areas and grows in a wide variety of soils, including sand dunes, but is most abundant in clayey soils. Disturbance is necessary for initial establishment, but once established it can rapidly spread by both rhizomes and seeds. Suitable habitat for all three of these plants exists within the lease parcels and may be present, although the extent is unknown.

3.8 Vegetation

Kay County

Kay County lies wholly within the Great Plains ecoregion. The surface is treeless, except for narrow strips of timber along the streams and in some places in the uplands adjacent to the stream bottoms.

In 2002, approximately 324,000 acres or 54 percent of the county was cultivated. The county has about 20,000 acres of irrigated cropland and improved pasture. The remaining 46 percent of the county is native range; nonirrigated, improved pasture; and urban development.

Custer County

Custer County lies within the Great Plains ecoregion, similar to that of Kay County. In 2002, approximately 284,000 acres (44%) of the county, was cultivated. The county had about 39,000 acres of irrigated cropland and improved pasture. The remaining 56 percent of the county was native range; non-irrigated, improved pasture; and urban development (NRCS 2007).

Dewey County

Dewey County lies in the Gypsum Hills and High Plains provinces. The eastern part of the county is a rolling plain covered partially with black jack timber. The northwestern part is fairly level composed of Quaternary gravel. This is an eastward extension of the High Plains province.

Roger Mills County

Roger Mills County is part of the Central Great Plains in the southwest and the Southwestern Tablelands in the northeast. The Central Great Plains encompasses some of the best agricultural land in Oklahoma while the Southwestern Tablelands are elevated grasslands.

The lands of the county originally supported a good growth of grasses, with considerable timber, mainly cottonwood, elm, and walnut in the bottoms.

Creek County

Creek County lies within the Cross Timbers ecoregion of Oklahoma. This ecoregion is characterized by a mix of savanna, woodland, and prairie is native to the low hills, cuestas, ridges, and plains of the ecoregion, and separates the forests of eastern ecoregions from the prairies of drier, western ecoregions. Tall grasses are native on fine-textures, moisture deficient soils derived from limestone, shale, or marl. Recent fire suppression has increase forest density and allowed eastern red cedar to invade many areas. Today, woodland, rangeland, pastureland, and several extensive oil fields occur. Abandoned, depleted farmland is common. The remaining cropland is largely restricted to valleys near channelized streams whose degraded habitat supports very poor assemblages of aquatic fauna.

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."

Table 4. List of the species, federally listed as endangered, threatened, or as rare species of special concern, which occur or have potential for occurrence in Kay, Custer, Dewey, Roger Mill and Creek Counties, Oklahoma.

Federal and State Listed Threatened and Endangered Species and Species of Concern, Alfalfa, Jackson, Kay, Woods Counties, OK			
Scientific Name	Common Name -	Federal Status	County
Birds			
<i>Charadrius melodus</i>	Piping plover	Threatened	Kay/Custer/Dewey/Roger Mills/Creek
<i>Tympanuchus pallidicinctus</i>	Lesser Prairie-Chicken	Candidate	Custer/Dewey/Roger Mills
<i>Grus americana</i>	Whooping Crane	Endangered	Kay/Custer/Dewey/Roger Mills
<i>Sterna antillarum</i>	Interior Least Tern	Endangered	Kay/Custer/Dewey/Roger Mills/Creek
Fishes			
<i>Notropis girardi</i>	Arkansas River Shiner	Threatened	Custer/Dewey (Critical Habitat Custer County).
Insect			
<i>Nicrophorus americanus</i>	American Burying Beetle	Endangered	Creek

Piping Plovers

Habitat: Piping Plovers are found on mudflats, sandy beaches and shallow wetlands with sparse vegetation. They may be found along the margins of lakes and large rivers where there is exposed (bare) sand or mud.

Current Distribution: There are two nesting records for the Piping Plover in the Oklahoma panhandle, but this species is normally a spring and fall migrant throughout the state. Most records for migrating Piping Plovers occur across the main body of the state; recent records have come from Woodward, Alfalfa, Oklahoma, Cleveland, Tulsa and Washington counties. Spring migration occurs in April and early May; fall migration occurs between the last week of July and late September.

Lesser Prairie-Chicken (LPC)

Habitat: The sand shinnery and sand sagebrush native rangelands of northwest Oklahoma are crucial for survival of this species.

Current Distribution: LPC are found in southeastern Colorado, southwestern Kansas, northwestern Oklahoma, Eastern New Mexico, and the Texas Panhandle. The lesser prairie chicken is identified as a species of greatest conservation need in Oklahoma and is a candidate for federal listing as threatened, range-wide.

On November 30, 2012, the USFWS published in the Federal Register a proposal to list the lesser prairie-chicken as federally threatened under the ESA of 1973. The USFWS will make a final determination on whether to list the species by September 30, 2013.

Whooping Crane

Habitat: Whooping Cranes pass through Oklahoma each spring and fall during migration. While in our state, they are typically found in shallow wetlands, marshes, the margins of ponds and lakes, sandbars and shorelines of shallow rivers, wet prairies and crop fields near wetlands.

Current Distribution: During their migration, they pass through the western half of Oklahoma – most sightings occur west of Interstate 35 and east of Guymon in the panhandle. Currently, the migratory population consists of approximately 270 birds that nest in northern Canada and winter along the Gulf Coast of Texas.

The Salt Plains National Wildlife Refuge, located just south of the lease parcel, is designated as critical whooping crane habitat for use during the fall and spring migrations.

Interior Least Tern

Habitat: Terns live along large rivers and may sometimes be found hunting fish in shallow wetlands and the margins of ponds and lakes. Least Terns require bare sand and gravel for nesting and typically nest in small colonies consisting of two to 20 pairs along large rivers on sand bars and scoured bends. Colonies also occur on salt flats such as the large one at Salt Plains National Wildlife Refuge.

Current Distribution: The Least Tern is a rare species and is found in Oklahoma during the late spring and summer breeding season (mid-May through late August). In Oklahoma, Least Terns may be found on portions of the Arkansas, Cimarron, Canadian and Red rivers.

Arkansas River Shiner

Habitat: The Arkansas River Shiner inhabits the shallow braided channels of wide sandy prairie rivers in the Arkansas River system. Schools of shiners often gather on the lee side of sandbars and ridges of sand in the river channel. They spawn after heavy summer rains and their eggs drift with the water current and develop as they are carried downstream.

Current Distribution: At the present time, nearly all of the remaining Arkansas River Shiners occur in the Canadian River in Oklahoma, western Texas and eastern New Mexico. A small population may persist in the Cimarron River in Oklahoma, and an isolated population occurs in the Pecos River in southwestern Texas where they were accidentally introduced.

Arkansas River shiner critical habitat is designated in the Canadian River (often referred to as the South Canadian River) in New Mexico, Texas, and Oklahoma, the Beaver/North Canadian River in Oklahoma, and the Cimarron River in Kansas and Oklahoma, and the Arkansas River in Kansas.

American Burying Beetle

Habitat: Generalists; found in various habitat types including open fields and grasslands, oak-pine woodlands, oak-hickory forest, and edge habitat. Reproductive habitat tends to be more specialized, but not fully understood.

Current Distribution: Rhode Island, Massachusetts, South Dakota, Nebraska, Kansas, Arkansas, Texas and Oklahoma. At the time of listing in 1989, there were only two known populations. Latimer County, Oklahoma and on Block Island, Rhode Island.

3.9.2 Special Status Species

Oklahoma Department of Wildlife does not list any species of concern in the above listed counties.

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-201304-067 in Kay County is located within the Bird Conservation Region 22, Eastern Tallgrass Prairie. Thirty-nine birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found nine species from the Dalton Route Survey list, the Upland sandpiper Black-billed cuckoo, Red-headed woodpecker, Northern flicker, Loggerhead shrike, Bell's vireo, Field sparrow, Grasshopper sparrow, and the Dickcissel.

The NM-201304-068 in Custer County is located within the Bird Conservation Region 19, Central Mixed-Grass Prairie. Twenty-seven birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found seven species from the Eagle City Route Survey list, the Mississippi kite, Swainson's hawk, Red-headed woodpecker, Scissor-tail flycatcher, Loggerhead shrike, Bell's vireo, and the Cassin's sparrow.

The NM-201304-069 in Dewey County is located within the Bird Conservation Region 19, Central Mixed-Grass Prairie. Twenty-seven birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found seven species from the Eagle City Route Survey list, the Mississippi kite, Swainson's hawk, Red-headed woodpecker, Scissor-tail flycatcher, Loggerhead shrike, Bell's vireo, and the Cassin's sparrow.

The NM-201304-070 in Roger Mills County is located within the Bird Conservation Region 19, Central Mixed-Grass Prairie. Twenty-seven birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found eight species from the Grimes Route Survey list, the Mississippi kite, Little blue heron, Swainson's hawk, Red-headed woodpecker, Scissor-tail flycatcher, Loggerhead shrike, Bell's vireo, and the Cassin's sparrow.

The NM-201304-071 in Creek County is located within the Bird Conservation Region 21, Oaks and Prairies. Nineteen birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found six species from the Heyburn Route Survey list, the Little blue heron, Red-headed woodpecker, Scissor-tld flycatcher, Loggerhead shrike, Bell’s vireo, and the Orchard oriole.

Table 5. Preferred nesting habitat for each species known to breed or nest within or near proposed lease parcels.

Birds of Conservation Concern Known to Breed and/or Nest in or near Proposed Lease Parcels		
Wetland Associated	Grasslands	Woodland or Scrub
Little blue heron	Swainson’s hawk	Mississippi kite
	Scissor-tailed flycatcher	Red-headed woodpecker
	Cassin’s sparrow	Bell’s vireo
	Loggerhead shrike	Black-billed cuckoo
	Upland sandpiper	Northern flicker
	Field sparrow	Dickcissel
	Grasshopper sparrow	Orchard oriole
	Henslow’s sparrow	

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 any of the proposed lease parcels. Leasing the proposed parcels would not result in any immediate introduction of hazardous and non-hazardous substances.

3.11 Mineral Resources

Minerals occurring in commercial quantities include asphalt, oil and gas, coal, gypsum, salt, zinc, lead, chalk, commercial quality clays, helium, building stone, limestone, and sand and gravel. As of late 1993, approximately 433,212 acres of the BLM administered Federal mineral estate is under oil and gas lease. Most of the state is in a high oil and gas occurrence and development potential category (RMP 1993).

There are approximately 370,000 acres of Federal coal in Oklahoma.

Kay County

Oil is produced in several parts of the county. Natural gas is also produced in large quantities and is an important source of fuel used in homes and factories.

Custer County

The main geologic products of Custer County are oil and gas, water, clay, gypsum, dolomite, sand and gravel, volcanic ash, uranium and vanadium, and salt. Oil and gas production is dominant in the northern and central parts of the county. The gypsum is 91 to 95 percent pure with about 1.3 billion tons of reserves and covers about 24 square miles averaging about 36 feet in thickness are in the southeastern part of the county. In the same area, the associated anhydrite reserves are about 523 million tons and cover about 10 square miles that averages about 20 feet in thickness. The anhydrite underlies the gypsum at a depth of about 40 feet. There is no commercial production of either gypsum or anhydrite in the county at present. Several hundred thousand tons of volcanic ash occurs as much as 12 feet deep in the Custer City area. A limited amount has been quarried. Thin dolomites, 1 to 3 feet thick, occur in the eastern part of the County, with estimated reserves of 1.4 million cubic yards. Sandstones have been quarried locally for building purposes and ballast. Sand and gravel pits have been opened in many areas, and the material has been used for road metal, railroad ballast, and concrete. Several pure salt beds, 150 to 175 feet thick, occur 950 to 1,600 feet underground near Custer City, with reserves estimated at about 3 billion tons. Uranium and vanadium minerals have been found in the upper Cloud Chief formation and the lower Doxey Shale near Clinton and Foss but have not been found commercial (Faye and Hart 1978).

Dewey County

The county's natural resources have included bentonite, oil and gas, gypsum, clay, and sand. Bentonite, used in oil refining and the manufacture of cosmetics, was mined near Camargo.

Dewey County lies on the north limb of the Anadarko Basin.

Roger Mills County

As with most counties in Oklahoma oil and gas are the dominate mineral resources. Other resources may exist but are not in high enough quantities as to be economical.

Creek County

Creek County is situated on the north flank of the western end of the Arkoma basin. The exposed consolidated rocks are transitional in character between cyclic deposits of the shelf area, of northeastern Oklahoma and Kansas, and the much thicker deposits of the basin. They are high in the Pennsylvanian section, above the productive coal beds.

Exposed rock are common but the economic resources are modest. They consist of impure limestones of sparse occurrence; chert gravel, in the south central part of the county; inferior sand; abundant shale suitable for brick, tile, and pottery; and considerable accumulations of groundwater. In contrast, some of the subsurface rocks of Creek County are prolific sources of oil and gas.

3.12 Socioeconomics and Environmental Justice

Oklahoma's population of nearly 3.8 million is mostly urban, with almost 70 percent of the State's population residing in cities or towns. While over 90 percent of the State's land is in farms and ranches, the large size of typical Oklahoma farms and modern farming methods have resulted in relatively few people residing in rural areas. Oklahoma's economy is based upon a combination of agriculture production, manufacturing, service industries and mineral extraction. The oil and gas industry is a major contributor to the Oklahoma economy. More than 13 million barrels of oil and over 54 trillion cubic feet of natural gas have been extracted from under the state.

3.12.1 Socioeconomics

Kay County

Agriculture and related services are important enterprises in Kay County. The chief source of income is from the sale of wheat, grain sorghum, corn, alfalfa hay, livestock, and related products. Oil and gas are also important sources of income. The largest employer in the area is Conoco Phillips Petroleum Refining in Ponca City.

Custer County

Agriculture and related services are important enterprises in Custer County. The chief source of income is from the sale of wheat, cotton, grain sorghum, livestock, and related products. Oil and gas are also important sources of income.

Dewey County

Dewey County's economy has been based primarily on agriculture and livestock. The principal crops have included corn, cotton, wheat, broomcorn, Kaffir corn, and oats. In the eastern part of the county truck farmers grew tomatoes, watermelons, apples, blackberries, and other small fruits. At the turn of the twenty-first century, the county had 713 farms comprising 619,270 acres.

Roger Mills County

Roger Mills County's economy has been based primarily on farming and livestock raising. Principal crops have included Kaffir corn, broomcorn, wheat, cotton, corn, and alfalfa. At the turn of the twenty-first century the county had 680 farms, with an average size of 1,015.54 acres totaling 690,568 acres farmed in the county.

Creek County

Creek County's economy has been primarily based on agriculture, livestock raising, and the oil and gas industry. The principal crops have included cotton, wheat, corn, and oats. At the turn of the twenty-first century, Creek County had 1,475 farms comprising over 351,400 acres.

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.

Table 3. Demographics of proposed lease parcel counties.

	Population	% identified as Hispanic or Latino Origin	% identified as not white or of Hispanic or Latino Origin	Median Household Income	% living below the poverty level
Oklahoma	3,791,508	9.2%	22.6%	\$42,979	16.2%
Kay County	46,159	6.8%	19.4%	\$39,505	17.9%
Custer County	27,750	14.7%	13.1%	\$42,108	16.9%
Dewey County	4,867	5.6%	9.4%	\$39,940	13.6%
Roger Mills County	3,702	5.6%	9.1%	\$48,917	11.6%
Creek County	70,467	3.5%	18.6%	\$42,314	15.4%

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 Oklahoma are analyzed in the Oklahoma RMP (1994), 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 Oklahoma 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 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 Tulsa area has recorded exceedances of the O₃ NAAQS. The additional NO_x and VOCs emitted from any new oil and gas development on these leases are likely too small to have a significant effect on the overall ozone levels of the area.

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.

4.3.2.1 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.

While the act of leasing Federal minerals would have no impact on climate as a result of GHG emissions, subsequent exploration/development of the proposed lease could have effects on global climate through GHG emissions. However, those effects on global climate change cannot be determined. (Refer to cumulative effects section, 4.15). It is unknown whether the petroleum resources specific to these leases in the Proposed Action are gas or oil or a combination thereof.

Potential impacts of development could include increased airborne soil particles blown from new well pads or roads, exhaust emissions from drilling equipment, compressors, vehicles, and dehydration and separation facilities, as well as potential releases of GHG and VOCs during drilling or potential activities. The amount of increased emissions cannot be quantified at this time since it is unknown how many wells might be drilled, the types of equipment needed if a well were to be completed successfully (compressor, separator, dehydrator, etc.), or what technologies may be employed by the companies drilling any new wells. The degree of impact will vary according to the characteristics of the geologic formations from which production occurs.

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 GHG emissions inventory data describes "Natural Gas Systems" and "Petroleum Systems" as two major categories of 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 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.

Alternative 2—Proposed Action

Under this alternative, Kaw Lake could be impacted in the same manner as the above described impacts. However, the lease parcel would have a stipulation attached (COE-SS-1A), which does not permit surface occupancy within 2,000 feet of the Lake. This would reduce the potential for lake contamination as it would be unlikely that contaminants could move >2,000 feet provided BMPs/COAs were properly implemented.

Alternative 3—Preferred Alternative

There would be no impact to Kaw Lake from this alternative since the sale of this proposed parcel would be deferred. All other impacts described above for the remaining four parcels remain valid.

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

While the act of leasing Federal minerals produces no impacts to floodplains, 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 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.

Floodplains occur within parcel -067, -068, -069 and -071. The Army Corp of Engineers No Surface Occupancy stipulation will be attached to parcels -067 and -071. Protective stipulation ORA-1 would be attached to parcels -068 and -069, . ORA-1 states that, "All or portions of the lands under this lease lie in and or adjacent to a major watercourse and are subject to periodic flooding. Surface occupancy of these areas will not be allowed without the specific approval, in writing, of the BLM." In addition to ORA-1, a Floodplain Protection Lease Notice would also be attached to these two parcels. This notice would inform the lessee and operator that surface occupancy of these areas and surface disturbance within up to 200 meters of the outer edge of the floodplain may not be allowed in order to protect the integrity and functionality of the floodplain and associated watercourse. Furthermore, controlled surface use requiring special mitigation measures may be required and will be developed during the application for permit to drill. See Appendix 4 for the specific wording of the lease notice.

Mitigation

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

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. Protective stipulation ORA-2 would be attached to the lease of a tract which falls within a wetland/riparian. ORA-2 states that,

“All or portions of the lands under this lease contain wetland and/or riparian areas. Surface occupancy of these areas will not be allowed without the specific approval, in writing, of the Bureau of Land Management. Impacts or disturbance to wetlands and riparian habitats which occur on this lease must be avoided or mitigated. The mitigation shall be developed during the application for permit to drill.”

The Army Corp of Engineers No Surface Occupancy stipulation will be attached to parcels -067 and -071.

NM-201304-068 in Custer County and NM-201304-069 parcel in Dewey County would have stipulation ORA-2: Wetland/Riparian Protection attached to the lease.

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 Oklahoma Burial Desecration Law (Oklahoma Statute Chapter 47, Section 1168.0 - 1168.6) 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 Cheyenne/Arapaho, Kiowa, Apache, Wichita & Affiliated, Seminole, Creek, and Alabama Quassarte Thlopthlocco (Creek) Town 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 parcels. 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.

NM-201304-068, -69, and -70 parcels would have stipulation WO-ESA-7: Threatened and Endangered Species protection, ORA-5: Lesser Prairie Chicken timing Stipulation, and ORA-3: Season of Use.

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, Farmington and other Oklahoma Field Office (Kansas and Texas) 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 Oklahoma was analyzed in the Oklahoma RMP (1994), as amended (pg. 4-6 – 4-8). Potential development of all available federal minerals in Oklahoma 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 Oklahoma 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 Oklahoma RMP (1994), as amended, analysis.

More than 100 years of oil and gas development in Oklahoma has resulted in an extensive infrastructure of existing roads and pipelines. The Oklahoma Corporation Commission reports a total of 115,000 oil wells and 65,000 natural gas wells that are drilled and not plugged in Oklahoma. A total of 74,319 thousand barrels of oil was produced in 2011 with an average of 62 rotary rigs in operation per month. They also report a total of 1,827,328 million cubic feet of natural gas was produced in 2011 with an average of 120 rotary rigs in operation per month. 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 the five counties in which the proposed lease parcels occur. 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 pollutants and GHG emissions in the five counties 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 actions would not result in eastern or western Oklahoma exceeding 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 any development of the leases is not expected to impact the 8-hour average ozone concentrations, or any other criteria pollutants in eastern or western Oklahoma.

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; 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.

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.

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	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 Oklahoma RMP (1994), 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

- Belden, M. and N.I. Osborn. 2002. Hydrologic Investigation of the Ogallala Aquifer in Roger Mills and Beckham Counties, Western Oklahoma. Oklahoma Water Resource Board Technical Report GW2002-2.
- CCSP, 2008: *Climate Models: An Assessment of Strengths and Limitations*. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research [Bader D.C., C. Covey, W.J. Gutowski Jr., I.M. Held, K.E. Kunkel, R.L. Miller, R.T. Tokmakian and M.H. Zhang (Authors)]. Department of Energy, Office of Biological and Environmental Research, Washington, D.C., USA, 124 pp.
- EDDMapS. 2012. Early Detection & Distribution Mapping System. The University of Georgia – Center for Invasive Species and Ecosystem Health. Available online at <http://www.eddmaps.org>.
- EPA Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. Environmental Protection Agency, Washington, D.C.
- EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. EPA 430-R-10-006, <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>.
- EPA, Natural Gas Star Program (2006 data)
at: <http://www.epa.gov/gasstar/accomplishments/index.html>. Environmental Protection Agency, Washington, D.C.
- Environmental Protection Agency. 2011. Technology Transfer Network: Clearinghouse for Inventories and Emissions Factors. <http://www.epa.gov/ttn/chief/eiinformation.html>.
- Environmental Protection Agency, 2012. Air Trends. <http://www.epa.gov/airtrends>. (Accessed 1/10/13).
- Environmental Protection Agency, 2012a. Air Data: AQI Report. http://www.epa.gov/airquality/airdata/ad_rep_aqi.html. (Accessed 1/10/13).
- Environmental Protection Agency, 2012b. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010. EPA 430-R-12-001. <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html>. (Accessed 1/7/2013).
- Fay, R.O and D.L. Hart, Jr. 1978. Geology and Mineral Resources (exclusive of petroleum) of Custer County, Oklahoma. Oklahoma Geologic Survey Bulletin 114. The University of Oklahoma. Norman, OK. Available at: <http://www.ogs.ou.edu/pubsscanned/BULLETINS/Bulletin114wm.pdf>.
- Goddard Institute for Space Studies. 2007. Annual Mean Temperature Change for Three Latitude Bands. Datasets and Images. GISS Surface Temperature Analysis, Analysis Graphs and Plots. New York, New York. (Available on the Internet: <http://data.giss.nasa.gov/gistemp/graphs/Fig.B.lrg.gif>.)

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2015: The Physical Basis (Summary for Policymakers). Cambridge University Press. Cambridge, England and New York, New York. (Available on the Internet: <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>)

Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007, Synthesis Report. A Report of the Intergovernmental Panel on Climate Change.

Karl, Thomas L., Jerry M. Melillo, and Thomas C. Peterson, (eds.). Global Climate Change Impacts in the United States, Cambridge University Press, 2009.

Kim, E.M. and S.C. Ruppel. 2005. Oil and Gas Production in Oklahoma. Bureau of Economic Geology, The University of Oklahoma, Austin. Austin, TX. Available at: <http://www.beg.utexas.edu/UTopia/images/pagesizemaps/oilgas.pdf>.

Luckey, R.L. and M.F. Becker. 1999. Hydrogeology Water Use and Simulation of Flow in the High Plains Aquifer in Northwestern Oklahoma, Southeastern Colorado, Southwestern Kansas, Northeastern New Mexico, and Northwestern Texas: US Geological Survey Water-Resources Investigation 99-4104, 62 p.

National Academy of Sciences. 2006. Understanding and Responding to Climate Change: Highlights of National Academies Reports. Division on Earth and Life Studies. National Academy of Sciences. Washington, D.C. (Available on the Internet: <http://dels.nas.edu/basc/Climate-HIGH.pdf>.)

Osborn, N.I. and R.H. Hardy. 1999. Statewide Groundwater Vulnerability Map of Oklahoma. Oklahoma Water Resources Board Technical Report 99-1. Available at: <http://www.owrb.ok.gov/studies/reports/gwvulnerability/entire-report.pdf>.

Texas Administrative Code. 2012. Quarantines and noxious plants, Chapter 19 (07 September 2012). State of Texas.

USDA (Department of Agriculture, Natural Resource Conservation Service [NRCS]). Web Soil Survey. <http://websoilsurvey.nrcs.gov/>.

NRCS. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

NRCS. 2007a. Supplement to the Soil Survey of Custer County, Oklahoma. Available online at: <http://soildatamart.nrcs.usda.gov/Manuscripts/OK039/0/Custer.pdf>.

NRCS. 2007b. Supplement to the Soil Survey of Kay County, Oklahoma. Available online at: <http://soildatamart.nrcs.usda.gov/Manuscripts/OK071/0/Kay.pdf>.

US Census Bureau. (2012). State and County Quick Facts: Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds

Report. <http://quickfacts.census.gov/qfd/states/20/20023.html>.

USDI (US Department of the Interior, Bureau of Land Management [BLM]). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book (4th ed), P-417.

USDI (BLM). February 1994. Oklahoma Resource Management Plan and Final Environmental Impact State. Tulsa, Oklahoma.

USDI (BLM). May 1994. Record of Decision and Final Oklahoma Resource Management Plan. Tulsa, Oklahoma.

USDI (BLM). 2011. Air quality Technical Report. New Mexico State Office. http://www.blm.gov/nm/st/en/prog/more/air_resources/air_resources_technical.html.

US Government Accountability Office Report "Climate Change, Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources" GAO-07-863, August 2007 (1st paragraph, 1st page, GAO Highlights) at: <http://www.gao.gov/news.items/d07863.pdf>.

US Geological Survey (USGS). 1966. Ground-water resources of Houston County, Texas. Texas Water Development Board Report 18. Austin, TX. Available at: http://www.twdb.state.tx.us/publications/reports/numbered_reports/doc/R18/R18.pdf.

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.

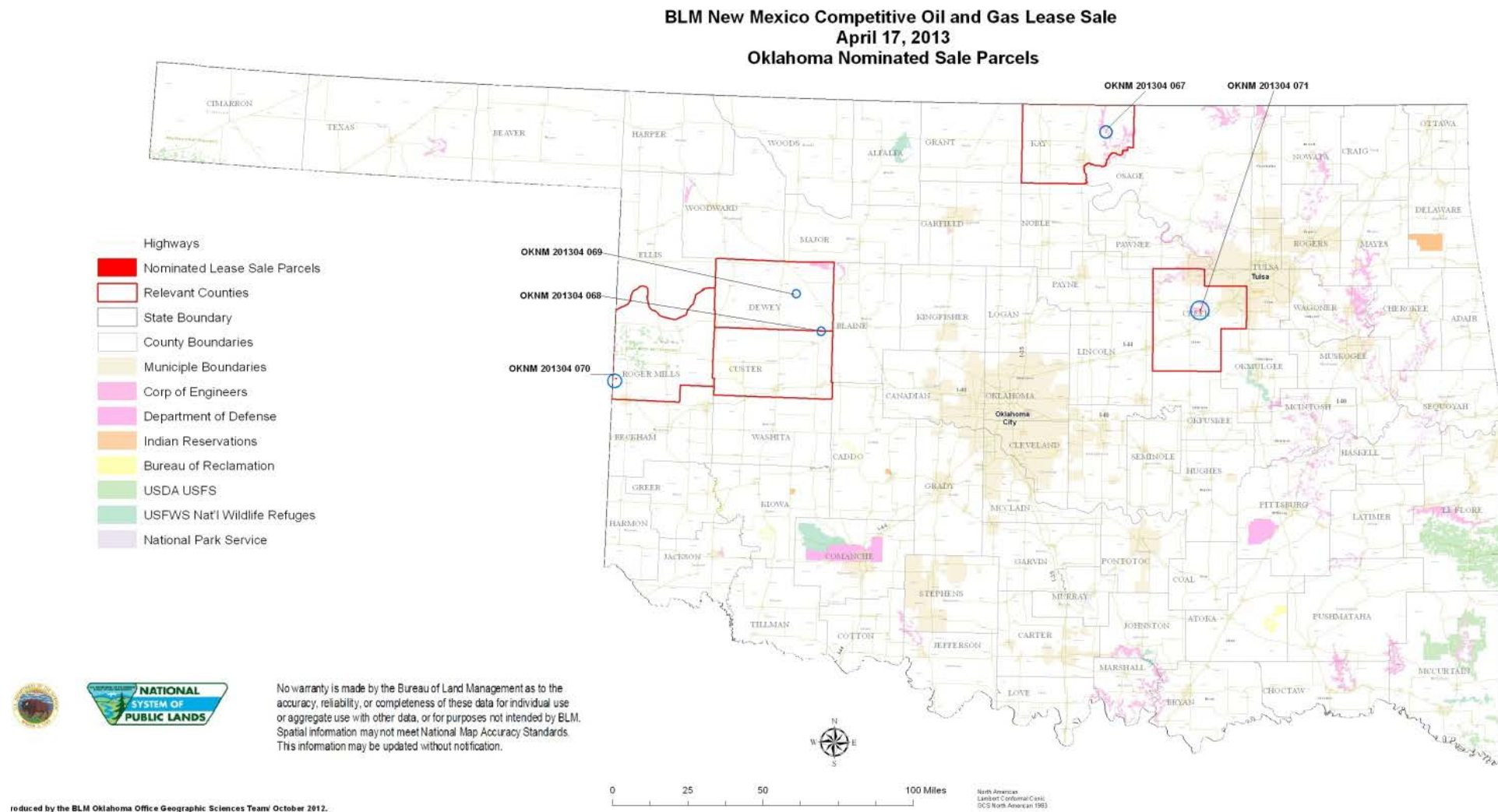
Appendix 1. April 2013 Oil & Gas Lease Sale – Oklahoma Field Office – Oklahoma

Parcels and applicable stipulations are presented in the table below.

Parcel	Comments	Acres
<p><u>NM-201304-067</u></p> <p>T. 0280N, R. 0030E, IM PM, OK Sec. 036 Lots 2-4</p> <p>Kay County, OK</p>	<p><u>Other Surface Management (OSM):</u> Army Corp of Engineers</p> <p><u>Lease with the following Stipulations:</u> COE-SS-1A: No Surface Occupancy</p>	84.750
<p><u>NM-201304-068</u></p> <p>T. 0150N, R. 0140W, IM PM, OK Sec. 005 ACC & RIP TO Lot 4</p> <p>Custer County, OK</p>	<p><u>Lease with the following Stipulations:</u> LN: Floodplain Protection – Pending; Under Development ORA-1: Floodplain Protection ORA-2:Wetland/Riparian Protection WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation</p>	113.220
<p><u>NM-201304-069</u></p> <p>T. 0180N, R. 0160W, IM PM, OK Sec. 025 ACC & RIP TO Lot 1</p> <p>Dewey County, OK</p>	<p><u>Lease with the following Stipulations:</u> LN: Floodplain Protection – Pending; Under Development ORA-1: Floodplain Protection ORA-2:Wetland/Riparian Protection WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation</p>	21.110
<p><u>NM-201304-070</u></p> <p>T. 0120N, R. 260W, IM PM, OK Sec. 008 SW</p> <p>Roger Mills County, OK</p>	<p><u>Lease with the following Stipulations:</u> ORA-3: Season of Use – Lesser Prairie Chicken WO-ESA-7: Threatened & Endangered Consultation WO-NHPA: Tribal and Cultural Resources Consultation</p>	160.000
<p><u>NM-201304-071</u></p> <p>T. 0170N, R. 0090E, IM PM, OK Sec. 014 E2 Sec. 023 N2NE</p> <p>Creek County, OK</p>	<p><u>Other Surface Management (OSM):</u> Army Corp of Engineers</p> <p><u>Lease with the following Stipulations:</u> COE-SS-1A (Heyburn Lake): No Surface Occupancy</p>	400.00

Appendix 2. Oklahoma Nominated Lease Sale Parcel.

Figure 2. Overview of Oklahoma 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 Federal Oil & Gas Lease Sale Oklahoma Counties
Kay County, Oklahoma Sec. 36-T28N-R3E
Custer County, Oklahoma Sec.5-T15N-R14W
Dewey County, Oklahoma Sec. 25-T18N-R16W
Roger Mills County, Oklahoma Sec. 8-T12N-R26W
Creek County, Oklahoma Sec. 14-T17N-R9E, Sec. 23-T17N-R9E
(DOI-BLM-NM-040-2013-002).

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 table below provides a list of the species, federally listed as endangered, threatened, or as rare species of special concern, which occur or have potential for occurrence in Kay, Custer, Dewey, Roger Mill and Creek Counties, Oklahoma. Oklahoma Department of Wildlife does not list any species of concern in the above listed counties.

Federal and State Listed Threatened and Endangered Species and Species of Concern, Alfalfa, Jackson, Kay, Woods Counties, OK			
Scientific Name	Common Name	Federal Status	County
Birds			
<i>Charadrius melodus</i>	Piping plover	Threatened	Kay/Custer/Dewey/Roger Mills/Creek
<i>Tympanuchus pallidicinctus</i>	Lesser Prairie-Chicken	Candidate	Custer/Dewey/Roger Mills
<i>Grus americana</i>	Whooping Crane	Endangered	Kay/Custer/Dewey/Roger Mills
<i>Sterna antillarum</i>	Interior Least Tern	Endangered	Kay/Custer/Dewey/Roger Mills/Creek
Fishes			
<i>Notropis girardi</i>	Arkansas River Shiner	Threatened	(Critical Habitat Custer County). Custer/Dewey
Insect			
<i>Nicrophorus americanus</i>	American Burying Beetle	Endangered	Creek

Piping Plovers

Habitat: Piping Plovers are found on mudflats, sandy beaches and shallow wetlands with sparse vegetation. They may be found along the margins of lakes and large rivers where there is exposed (bare) sand or mud.

Current Distribution: There are two nesting records for the Piping Plover in the Oklahoma panhandle, but this species is normally a spring and fall migrant throughout the state. Most records for migrating Piping Plovers occur across the main body of the state; recent records have come from Woodward, Alfalfa, Oklahoma, Cleveland, Tulsa and Washington counties. Spring migration occurs in April and early May; fall migration occurs between the last week of July and late September.

Lesser Prairie-Chicken (LPC)

Habitat: The sand shinnery and sand sagebrush native rangelands of northwest Oklahoma are crucial for survival of this species.

Current Distribution: LPC are found in southeastern Colorado, southwestern Kansas, northwestern Oklahoma, Eastern New Mexico, and the Texas Panhandle. The lesser prairie chicken is identified as a species of greatest conservation need in Oklahoma and is a candidate for federal listing as threatened, range-wide.

Whooping Crane

Habitat: Whooping Cranes pass through Oklahoma each spring and fall during migration. While in our state, they are typically found in shallow wetlands, marshes, the margins of ponds and lakes, sandbars and shorelines of shallow rivers, wet prairies and crop fields near wetlands.

Current Distribution: During their migration, they pass through the western half of Oklahoma – most sightings occur west of Interstate 35 and east of Guymon in the panhandle. Currently, the migratory population consists of approximately 270 birds that nest in northern Canada and winter along the Gulf Coast of Texas.

The Salt Plains National Wildlife Refuge, located just south of the lease parcel, is designated as critical whooping crane habitat for use during the fall and spring migrations.

Interior Least Tern

Habitat: Terns live along large rivers and may sometimes be found hunting fish in shallow wetlands and the margins of ponds and lakes. Least Terns require bare sand and gravel for nesting and typically nest in small colonies consisting of two to 20 pairs along large rivers on sand bars and scoured bends. Colonies also occur on salt flats such as the large one at Salt Plains National Wildlife Refuge.

Current Distribution: The Least Tern is a rare species and is found in Oklahoma during the late spring and summer breeding season (mid-May through late August). In Oklahoma, Least Terns may be found on portions of the Arkansas, Cimarron, Canadian and Red rivers.

Arkansas River Shiner

Habitat: The Arkansas River Shiner inhabits the shallow braided channels of wide sandy prairie rivers in the Arkansas River system. Schools of shiners often gather on the lee side of sandbars and ridges of sand in the river channel. They spawn after heavy summer rains and their eggs drift with the water current and develop as they are carried downstream.

Current Distribution: At the present time, nearly all of the remaining Arkansas River Shiners occur in the Canadian River in Oklahoma, western Texas and eastern New Mexico. A small population may persist in the Cimarron River in Oklahoma, and an isolated population occurs in the Pecos River in southwestern Texas where they were accidentally introduced.

Arkansas River shiner critical habitat is designated in the Canadian River (often referred to as the South Canadian River) in New Mexico, Texas, and Oklahoma, the Beaver/North Canadian River in Oklahoma, and the Cimarron River in Kansas and Oklahoma, and the Arkansas River in Kansas.

American Burying Beetle

Habitat: Generalists; found in various habitat types including open fields and grasslands, oak-pine woodlands, oak-hickory forest, and edge habitat. Reproductive habitat tends to be more specialized, but not fully understood.

Current Distribution: Rhode Island, Massachusetts, South Dakota, Nebraska, Kansas, Arkansas, Texas and Oklahoma. At the time of listing in 1989, there were only two known populations. Latimer County, Oklahoma and on Block Island, Rhode Island.

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.

Kay County, OK.

Sec. 36-T28N-R3E

U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory map showed Freshwater Emergent, Freshwater Forested/Shrub, Lake, and River, wetland issues within this lease parcel.

Custer County, OK.

Sec. 5-T15N-R14W

The USFWS National Wetlands Inventory map showed Freshwater Forested/Shrub, Riverine, wetland issues within this lease parcel.

Dewey County, OK.

Sec. 25-T18N-R16W

The USFWS National Wetlands Inventory map showed Freshwater Emergent, and Freshwater Forested/Shrub wetland issues within this lease parcel.

Roger Mills County, OK.

Sec. 25-T18N-R16W

The USFWS National Wetlands Inventory Mapper showed no wetland or riparian habitat within 300' of this proposed lease sale parcel. The parcel is located in an agriculture field. It is understood that wetland and riparian habitats will not be impacted by the sale of this lease parcel.

Creek County, OK.

Sec. 14-T17N-R9E

Sec. 23-T17N-R9E

The USFWS National Wetlands Inventory map showed Freshwater Emergent, Freshwater Forested/Shrub, and a Lake wetland issues within these lease parcels.

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-201304-067 in Kay County is located within the Bird Conservation Region 22, Eastern Tallgrass Prairie. Thirty-nine birds of conservation concern have been identified in this region.

Breeding bird surveys conducted near the site found nine species from the Dalton Route Survey list, the Upland sandpiper Black-billed cuckoo, Red-headed woodpecker, Northern flicker, Loggerhead shrike, Bell's vireo, Field sparrow, Grasshopper sparrow, and the Dickcissel.

The NM-201304-068 in Custer County is located within the Bird Conservation Region 19, Central Mixed-Grass Prairie. Twenty-seven birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found seven species from the Eagle City Route Survey list, the Mississippi kite, Swainson's hawk, Red-headed woodpecker, Scissor-tailed flycatcher, Loggerhead shrike, Bell's vireo, and the Cassin's sparrow.

The NM-201304-069 in Dewey County is located within the Bird Conservation Region 19, Central Mixed-Grass Prairie. Twenty-seven birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found seven species from the Eagle City Route Survey list, the Mississippi kite, Swainson's hawk, Red-headed woodpecker, Scissor-tailed flycatcher, Loggerhead shrike, Bell's vireo, and the Cassin's sparrow.

The NM-201304-070 in Roger Mills County is located within the Bird Conservation Region 19, Central Mixed-Grass Prairie. Twenty-seven birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found eight species from the Grimes Route Survey list, the Mississippi kite, Little blue heron, Swainson's hawk, Red-headed woodpecker, Scissor-tailed flycatcher, Loggerhead shrike, Bell's vireo, and the Cassin's sparrow.

The NM-201304-071 in Creek County is located within the Bird Conservation Region 21, Oaks and Prairies. Nineteen birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found six species from the Heyburn Route Survey list, the Little blue heron, Red-headed woodpecker, Scissor-tailed flycatcher, Loggerhead shrike, Bell's vireo, and the Orchard oriole.

The table below shows the preferred nesting habitat for each species known to breed or nest within or near proposed lease parcels.

Birds of Conservation Concern Known to Breed and/or Nest in or near Proposed Lease Parcels		
Wetland Associated	Grasslands	Woodland or Scrub
Little blue heron	Swainson's hawk	Mississippi kite
	Scissor-tailed flycatcher	Red-headed woodpecker

Birds of Conservation Concern Known to Breed and/or Nest in or near Proposed Lease Parcels		
Wetland Associated	Grasslands	Woodland or Scrub
	Cassin's sparrow	Bell's vireo
	Loggerhead shrike	Black-billed cuckoo
	Upland sandpiper	Northern flicker
	Field sparrow	Dickcissel
	Grasshopper sparrow	Orchard oriole
	Henslow's sparrow	

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-201304-067 in Kay County, OK. parcel would have stipulation WO-ESA-7: Threatened and Endangered Species protection, ORA-2 Wetland/Riparian Protection, .

The NM-201304-068 in Custer County, OK. parcel will have stipulation WO-ESA-7: Threatened and Endangered Species protection, ORA-2: Wetland/Riparian Protection, ORA-5: Lesser Prairie Chicken timing Stipulation, and ORA-3: Season of Use.

The NM-201304-069 in Dewey County, OK. parcel will have stipulation WO-ESA-7: Threatened and Endangered Species protection, ORA-2: Wetland/Riparian Protection ORA-5: Lesser Prairie Chicken timing Stipulation, and ORA-3: Season of Use.

The NM-201304-070 in Roger Mills County, OK. parcel will have stipulation WO-ESA-7: Threatened and Endangered Species protection, ORA-5: Lesser Prairie Chicken timing Stipulation, and ORA-3: Season of Use.

The NM-201304-071 in Creek County, OK. parcel will have stipulation WO-ESA-7: Threatened and Endangered Species protection, and ORA-2: Wetland/Riparian 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**”.

_____;

Becky Peters Wildlife Biologist

10/22/2012 .

Date

Appendix 5

ORA-LN-3

LEASE NOTICE FLOODPLAIN MANAGEMENT DRAFT

All or portions of the lands under this lease lie in and/or adjacent to a major watercourse and may be subject to periodic flooding. In accordance with E.O. 11988 – Floodplain Management 5/24/1977, as amended, and the Clean Water Act of 1972, as amended, impacts or disturbances to this area must be avoided or mitigated. Surface occupancy of these areas and surface disturbance within up to 200 meters of the outer edge of the floodplain may not be allowed in order to protect the integrity and functionality of the floodplain and associated watercourse. Controlled surface use requiring special mitigation measures may be required and will be developed during the application for permit to drill. These would be required as part of the environmental analysis, approval for drilling or any other operation on this lease. These measures could include modifications or relocation of proposed well locations; burial of linear facilities such as pipelines; modifications in surface activities; minimizing surface disturbance by co-locating roads, utilities and pipelines in common rights-of-ways; interim reclamation of all surface disturbance initiated immediately after construction; reduction of long term noise producing activities; suitable off-site mitigation or other reasonable measures to mitigate impacts to floodplains. These measures may be imposed in accordance with Section 6 of the lease terms, Onshore Oil and Gas Order No. 1, 43 CFR 3162.5-1 and 43 CFR 3101.1-2.

For the purpose of:

To protect the unique biological and hydrological features associated with rivers, streams, riparian/wetland areas, and areas within the 100-year floodplain demarcation.

**Bureau of Land Management
Oklahoma Field Office**

**ORA-LN-3
November 2012**