



# United States Department of the Interior

## Bureau of Land Management

Eastern States  
Jackson Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>



IN REPLY REFER TO:  
3100 (020) AM

September 20, 2013

### Memorandum

To: State Director, Eastern States (ES-930)

From: Field Manager, Jackson

Subject: National Environmental Policy Act (NEPA) Review for Expressions of Interest (EOI) in Alabama, Arkansas, and Louisiana

We have completed our NEPA review for 12 EOIs in Alabama, Arkansas, and Louisiana (See Attachment 1). The Environmental Assessments (EA), Determination of NEPA Adequacy Form (DNA), and an Addendum (for the AR EOIs) are attached. This is planned for the upcoming March 2014 lease sale. Please return signed copies of the EAs and DNA to me for our records. If you have any questions, please contact Alison McCartney at (601) 977-5407.

*Bruce Davis*

### 6 - Attachments

- 1 List of EOIs Processed
- 3 EA Documents
- 1 DNA Document
- 1 Addendum



WILD HORSES & BURROS • CADASTRAL SURVEY • GENERAL LAND OFFICE RECORDS • MINERALS • RENEWABLE RESOURCES



**Attachment 1**  
**List of EOIs Processed by the Southeastern States Field Office**  
**for the March Lease Sale, 2014**

**Alabama**

EOI #1720

EOI #1745

**Arkansas**

EOI #598

EOI #735

EOI #741

EOI #742

EOI #771

EOI #1000

EOI #1003

**Louisiana**

EOI #852

EOI #1692

EOI #1736

## ADDENDUM

Site visits were conducted on August 27, 28, 29, 30, 31, and September 1, 2013 to the EOI sites below by Alison McCartney, Natural Resource Specialist. These parcels had been surveyed in 2010 and 2011. An Environmental Assessment for these tracts was completed and approved on April 7, 2011, however the parcels have not yet been offered on a lease sale. The return site visits were conducted in 2013 to ensure that no additional surface disturbance had occurred on the tracts since the original surveys, to ensure that the EA is still accurate. It has been verified that no additional disturbance has occurred on the parcels below since the original site visits. All seven EOIs are located in Van Buren County, Arkansas. The following EOIs were revisited:

EOI #

598

735

741

742

771

1000

1003



# United States Department of the Interior

## Bureau of Land Management

Eastern States  
Jackson Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>



IN REPLY REFER TO:  
3100 (020) AM

April 12, 2011

Memorandum

To: State Director, Eastern States (ES-930)

From: Field Manager, Jackson

Subject: National Environmental Policy Act (NEPA) Review for Expressions of Interest (EOI) in Arkansas

We have completed our NEPA review for 7 EOIs in Arkansas (listed in Attachment 1).

The Environmental Assessment (EA) Forms are attached. This is planned for the upcoming September 2011 lease sale. Please return a signed copy of the EAs to our office for our records.

If you have any questions, please contact Alison McCartney at 601.977.5400, extension 407.

2 - Attachments  
1 List of EOIs Processed  
1 EA



WILD HORSES & BURROS • CADASTRAL SURVEY • GENERAL LAND OFFICE RECORDS • MINERALS • RENEWABLE RESOURCES



**Attachment 1**  
**List of EOIs Processed by the Southeastern States Field Office**  
**for the September Lease Sale, 2011**

**Arkansas**

EOI #598

EOI #735

EOI #741

EOI #742

EOI #771

EOI #1000

EOI #1003

**FINDING OF NO SIGNIFICANT IMPACT/DECISION RECORD**

**FINDING OF NO SIGNIFICANT IMPACT**

Based on the analysis of potential environmental impacts contained in the attached environmental assessment (EA), I have determined that the proposed action will not have any significant impacts on the human environment and an environmental impact statement (EIS) is not required.



Bruce Dawson

4-13-2011

Date

Field Manager

**DECISION RECORD**

It is my decision to authorize the offer to lease for Oil and Gas the proposed tracts located in Van Buren, Arkansas, Fifth Principal Meridian, with legal description: T9N, R12W, Sec. 9, Lot 1 of NW (8.18 acres) (EOI#598), T10N, R15W, Sec. 6, E2NE, NWNE, SWNE, SENW, NWSE, NESW (258.04 acres) (EOI# 735), T12N, R13W, Sec. 2, SWSENE, Pt. SESWNE, NESE less 2 acres M&B, W2SE, SESW (170 acres) (EOI #741), T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW, Sec. 35, NESW (200 acres) (EOI #742), T9N, R12W, Sec. 29, S2NENE, SENE, Part of SWNE, Part of N2SE (145 acres) (EOI #771), T11N, R15W, Sec. 14, NWSW (40 acres) (EOI #1000), T12N, R16W, Sec. 11, NWNE, NENW, SENW, E2NENWNW, S2NWNW (145 acres) (EOI #1003), Fifth Principal Meridian, Van Buren County, Arkansas.

**Rationale for Decision**

The decision to allow the proposed action does not result in any undue or unnecessary environmental degradation and is consistent with the laws and regulations of the Federal, State, or local government. The proposed action was subject to a 30-day public review.

\_\_\_\_\_  
DSD, Natural Resources

\_\_\_\_\_  
Date

**BUREAU OF LAND MANAGEMENT  
SOUTHEASTERN STATES FIELD OFFICE  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206**

**ENVIRONMENTAL ASSESSMENT (EA) FORM**

ES-020-2008-29  
ES-020-2010-29  
ES-020-2010-110  
ES-020-2010-23  
ES-020-2010-112  
ES-020-2010-61  
ES-020-2010-63

PROJECT NAME: EOI #598, Van Buren County, Arkansas Lease EA  
EOI #735, Van Buren County, Arkansas Lease EA  
EOI #741, Van Buren County, Arkansas Lease EA  
EOI #742, Van Buren County, Arkansas Lease EA  
EOI #771, Van Buren County, Arkansas Lease EA  
EOI #1000, Van Buren County, Arkansas Lease EA  
EOI #1003, Van Buren County, Arkansas Lease EA

TECHNICAL REVIEW:

<b>X</b>	<b>Program</b>	<b>Reviewer</b>	<b>Signature</b>	<b>Date</b>
X	Air Quality	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	ACEC	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Botanical including T&E Spp.	Alison McCartney Natural Resource Specialist	ASM	4/11/11
	Communications (Dispatch)			
X	Cultural/Paleontology	John Sullivan Archeologist		4/11/11
X	Energy Policy	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Environmental Justice	Alison McCartney Natural Resource Specialist	ASM	4/11/11
	Farmlands (Prime & Unique)			
	Fire Management			
X	Floodplain	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Hazardous Material	Brian Kennedy Physical Scientist		4/11/11
X	Invasive & Non-Native Spp.	Alison McCartney Natural Resource	ASM	4/11/11

		Specialist		
	Lands/Realty			
	Land Law Examiner			
	Law Enforcement			
X	Minerals	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Native American Religious Concerns	John Sullivan Archeologist	<del>ASM</del>	4/11/11
	Operations			
	Range Management			
X	Recreation	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Soils	Alison McCartney Natural Resource Specialist	ASM	4/11/11
	Surface Protection			
	Visual Resources			
	Water Rights			
X	Water Quality (Surface & Ground)	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Wetlands/Riparian Zones	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Wild & Scenic Rivers	Alison McCartney Natural Resource Specialist	ASM	4/11/11
X	Wilderness	Alison McCartney Natural Resource Specialist	ASM	4/11/11
	Wild Horse & Burro			
X	Wildlife including T&E Spp.	Alison McCartney Natural Resource Specialist	ASM	4/11/11

Prepared by: Alison McCartney  
Alison McCartney  
Natural Resource Specialist

Date: 4/11/11

Reviewed by: Duane Winters  
Gary Taylor  
NEPA Coordinator

Date: 4/13/11

Reviewed by: Duane Winters  
Duane Winters  
Resource Supervisor

Date: 4/13/11

Reviewed by: John Dykes  
John Dykes  
Minerals Supervisor

Date: 4/12/11



# United States Department of the Interior



## BUREAU OF LAND MANAGEMENT

Jackson Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206

### **Environmental Assessment**

**ES-020-2008-29**

**ES-020-2010-29**

**ES-020-2010-110**

**ES-020-2010-23**

**ES-020-2010-112**

**ES-020-2010-61**

**ES-020-2010-63**

EOI #598, Van Buren County, Arkansas Lease EA  
EOI #735, Van Buren County, Arkansas Lease EA  
EOI #741, Van Buren County, Arkansas Lease EA  
EOI #742, Van Buren County, Arkansas Lease EA  
EOI #771, Van Buren County, Arkansas Lease EA  
EOI #1000, Van Buren County, Arkansas Lease EA  
EOI #1003, Van Buren County, Arkansas Lease EA

**Prepared by: Alison McCartney**  
**Date: April 7, 2011**

## **CH 1 – PURPOSE OF AND NEED FOR THE PROPOSED ACTION**

### **Introduction**

This environmental assessment (EA) is prepared to address seven proposed federal oil and gas lease nominations in Van Buren County, Arkansas pursuant to the Minerals Leasing Act of 1920, as amended. A federal oil and gas lease is a legal contract that grants exclusive rights to the lessee to develop oil and gas resources on federally owned property.

### **Need for the Proposed Action**

The development of oil and natural gas is essential to meeting the nation's future needs for energy. Private exploration and development of federal oil and gas reserves are integral to the Bureau of Land Management's (BLM) oil and gas leasing programs under the authority of the Mineral Leasing Act 1920, as amended, the Mineral Leasing Act for Acquired Lands of 1947, as amended, the Federal Land Policy and Management Act of 1976 and the Energy Policy Act of 2005. The oil and gas leasing program managed by BLM encourages the development of domestic oil and gas reserves and reduction of U.S. dependence on foreign sources of energy. The tracts considered for lease in this analysis were nominated by Expressions of Interest (EOIs) from private industry.

On October 4, 2007 (EOI #598), May 13, 2010 (EOI #741), December 30, 2009 (EOI #735 and #742), and April 6, 2010 (EOI #1000 and #1003) the BLM, Southeastern States Field Office received requests from the BLM Eastern States Office for National Environmental Policy Act (NEPA) Analysis reports on 966.22 acres of land with the following legal descriptions: T9N, R12W, Sec. 9, Lot 1 of NW (8.18 acres) (EOI#598), T10N, R15W, Sec. 6, E2NE, NWNE, SWNE, SENW, NWSE, NESW (258.04 acres) (EOI# 735), T12N, R13W, Sec. 2, SWSENE, Pt. SESWNE, NESE less 2 acres M&B, W2SE, SESW (170 acres) (EOI #741), T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW, Sec. 35, NESW (200 acres) (EOI #742), T9N, R12W, Sec. 29, S2NENE, SENE, Part of SWNE, Part of N2SE (145 acres) (EOI #771), T11N, R15W, Sec. 14, NWSW (40 acres) (EOI #1000), T12N, R16W, Sec. 11, NWNE, NENW, SENW, E2NENWNW, S2NWNW (145 acres) (EOI #1003), Fifth Principal Meridian, Van Buren County, Arkansas. The nominated parcels are located on privately owned land.

### **Management Objectives of the Action**

The objective of the proposed action is to make available for lease 966.22 acres in Van Buren County, Arkansas to provide exclusive rights to the lessee to develop federally owned oil and gas resources that exist on private land.

### **Land Use Plan Conformance**

The proposed action does not conflict with any known State or local planning, ordinance or zoning. This area is not covered by a BLM Resource Management Plan. According to the regulations at 43 CFR 1610.8 (b) (1), however, this environmental assessment will be used as a basis for making a decision on the proposal.

### **Applicable Regulatory Requirements and Required Coordination**

Applicable regulatory requirements and required coordination for lease development of federal oil and gas minerals is authorized by several statutes including: The Mineral leasing Act, as amended and supplemented (30 U.S.C. 181), The Mineral Leasing Act of 1947, as amended (30 U.S.C. 351-359), The National Historic Preservation Act, The American Indian Religious Freedom Act, The Native American Graves Protection and Repatriation Act, E.O. 13007, and/or other statutes and executive orders.

The following agencies/tribes were contacted (Appendix C):

Arkansas State Historic Preservation Office  
Quapaw Nation  
Osage Nation  
Wichita and Affiliated Tribes  
Choctaw Nation of Oklahoma  
Chickasaw Nation  
Cherokee Nation of Oklahoma  
United Keetoowah Band of Cherokee Indians  
Seminole Nation of Oklahoma  
Muscogee (Creek) Nation of Oklahoma  
Thlopthlocco Tribal Town  
Caddo Indian Tribe of Oklahoma  
Tunica - Biloxi Tribe  
Eastern Shawnee Tribe of Oklahoma  
Delaware Nation  
Absentee-Shawnee Tribe  
Delaware Trust Board  
Shawnee Tribe

The proposed nominations were subject to public review for a 30-day period per publication of a newspaper of local distribution (Appendix E).

### **Decision(s) That Must Be Made**

There are two decisions under consideration from the BLM for the proposed action. The first is to offer the federal oil and gas mineral estate for competitive leasing. The other decision would be to deny the action so that no development and surface disturbance would take place. BLM's policy is to promote oil and gas development as long as it meets the guidelines and regulations set forth by the National Environmental Policy Act of 1969 and other subsequent laws and policies passed by the U.S. Congress.

## CH 2 – ALTERNATIVES INCLUDING THE PROPOSED ACTION

### Introduction

A total of 966.22 acres of land have been nominated for a federal oil and gas lease in Van Buren County, Arkansas. A federal oil and gas lease is a legal contract that grants exclusive rights to the lessee to develop oil and gas resources that may exist on split estate property.

### Location

Legal descriptions for the nominated parcels are:

- EOI #598 - T9N, R12W, Sec. 9, Lot 1 of NW, Fifth Principal Meridian, Van Buren County, Arkansas (8.18 acres)
- EOI # 735 - T10N, R15W, Sec. 6, E2NE, NWNE, SWNE, SENW, NWSE, NESW, Fifth Principal Meridian, Van Buren County, Arkansas (258.04 acres)
- EOI #741 - T12N, R13W, Sec. 2, SWSENE, Pt. SESWNE, NESE less 2 acres M&B, W2SE, SESW, Fifth Principal Meridian, Van Buren County, Arkansas (170 acres)
- EOI #742 - T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW, Sec. 35, NESW, Fifth Principal Meridian, Van Buren County, Arkansas (200 acres)
- EOI #771 - T9N, R12W, Sec. 29, S2NENE, SENE, Part of SWNE, Part of N2SE, Fifth Principal Meridian, Van Buren County, Arkansas (145 acres)
- EOI #1000 - T11N, R15W, Sec. 14, NWSW, Fifth Principal Meridian, Van Buren County, Arkansas (40 acres)
- EOI #1003 - T12N, R16W, Sec. 11, NWNE, NENW, SENW, E2NENWNW, S2NWN, Fifth Principal Meridian, Van Buren County, Arkansas (145 acres)

### Proposed Action

The BLM, Southeastern States Field Office has received seven nominations or EOIs, to lease 966.22 acres of federal mineral estate for oil and gas development in Van Buren County, Arkansas. This lease would give the lessee exclusive rights to explore and develop oil and gas reserves on the lease, but does not in itself authorize surface disturbing activities. This competitive lease provides exclusive rights to develop the federal oil and gas resources, but does not obligate the company to drill a well on the federal mineral estate. The lease can be used to consolidate acreage to meet well spacing requirements, and/or the mineral estate may be acquired for speculative value. The BLM will require applicants to comply with Stipulations and Lease Notices/Best Management Practices for gas wells (Appendix B). The attached Stipulations and Lease Notices/Best Management Practices have been formulated while conducting our impact analysis and are made part of the proposed action. In addition, because the proposed

actions are within the Fayetteville Shale area, operators will need to utilize the Best Management Practices outlined in the Arkansas Best Management Practices for Fayetteville Shale Natural Gas Activities (April, 2007 or more recent version) (USFWS 2007). Access roads and flowlines will be constructed using Arkansas Best Management Practices for Natural Gas Pipeline Construction and Maintenance Activities in the Fayetteville Shale Area – Upper Little Red River Watershed.

The proposed nominations, if approved, would be offered for competitive sale with Stipulations and Notices generated through this and other consultations, as well as the National Environmental Policy Act (NEPA) process. Once awarded, the successful bidder is required to submit an Application for Permit to Drill (APD) to the BLM before any ground disturbance is authorized. In the APD, the company identifies a proposed drill site and provides the BLM with specific details on how and when they propose to drill the well within the constraints of the lease document. Upon receipt of an APD, BLM conducts an onsite inspection with the company, and when possible the private land owner or surface managing agency. NEPA and the Endangered Species Act (ESA) requirements must also be met at the APD stage and in those cases where there is the potential to affect federally or state-listed species, a site specific biological assessment is written, including the results of any biological surveys that may be indicated. This is submitted to U.S. Fish and Wildlife Service and/or the state wildlife agency for consultation, as appropriate. The lessee is required, as per lease stipulation, to comply with the recommendations of these consultations.

Typically, after approval of an APD, the petroleum industry follows a general plan and process for all proposed drill sites, as follows:

Spacing for the tracts will be 40 acres per well. Preparation for the drilling process includes construction of a road, drilling pad, and reserve pit. Constructed access roads normally have a running surface width of approximately 30 feet; the length is dependent upon the well site location in relation to existing roads or highways. The average length of road construction will be about 0.5 miles. Therefore, about 2 acres would be affected by road construction. Typically 2.5 acres are cleared and graded level for the construction of the drilling pad for a well. If the well is gas and productive, and the flowline is in the road, we can estimate that another 0.5 acres may be affected by flowline construction. The total disturbed area for drilling a productive well will be approximately 5 acres. These disturbances are typical for private or Federal Ownership well locations. The excavation reserve pit is usually about five feet deep and is lined with bentonite clay to retain drilling fluids, circulated mud, and cuttings. Plastic or butyl liners (or its equivalent), that meet state standards for thickness and quality, are used on occasions when soils are determined incapable of holding pit fluids.

Because of the cost of the drilling rig, drilling usually continues around the clock. Wells in this area are usually drilled in 30 days. Once drilling is completed, excess fluids are pumped out of the pit and disposed of in a state authorized disposal site and the cuttings are buried. Wells would be drilled by rotary drilling using mud as the circulating medium. Mud pumps would be used to force mud down the drillpipe, thereby forcing the rock cuttings out the wellbore. Water would normally be from a well drilled on the site, however, water could be pumped to the site from a local pond, stream or lake through a pipe laid on the surface. Approximately 1500 barrels of drilling mud would be typically kept on the location. If a tract is adjacent to a producing field

and water production will be expected during the life of the field, separation, dehydration and other production processing may be necessary. Construction of facilities off the Federal lease may be needed to handle this processing. Some processing or temporary storage may be necessary on site.

During well pad construction the topsoil is stockpiled to be used during restoration activities. If the well is successful, the drill pad would be reduced to about 100' x 100' with the remaining surface area, including the reserve pit, re-graded and restored as per the BLM and surface owner requirements. A Lease Notice in these proposed leases encourages the use of non-invasive cover plants during all restoration and stabilization activities. Final seed mixtures and plantings are determined with recommendations from BLM with approval of the land owner. The remaining 100' x 100' pad is maintained for the life of the well. The life of a productive well may be 25 years. Following abandonment, the pad is subject to the same restoration parameters.

The following information on the federal mineral tract is based on information collected during site visits conducted in 2010, aerial photographs, and topographic maps. Mitigation measures for potential negative impacts are listed in Appendix B as Lease Stipulations and Lease Notices/Best Management Practices. These recommended Lease Stipulations and Notices have been developed to provide general habitat protection and setbacks to exclude sensitive habitats from oil and gas development. Recommended mitigation for the proposed action is suggested as stipulations for freshwater aquatic habitat, cultural resources and tribal consultations, endangered species and special plant species (Appendix B). Additional surveys may be required for special status species after site-specific proposals have been received by BLM during the development phase.

### **No Action**

Under the No Action Alternative, the request to offer the proposed tracts for oil and gas lease would be denied. Potential economic benefits of production from these leases would be jeopardized.

## **CH. 3 – DESCRIPTION OF THE AFFECTED ENVIRONMENT**

### **Introduction**

All of the proposed nominations are located in Van Buren which is in north central Arkansas and is entirely within the Arkansas Valley Ecoregion. The legal descriptions for the nominated parcels are: T9N, R12W, Sec. 9, Lot 1 of NW (8.18 acres) (EOI#598), T10N, R15W, Sec. 6, E2NE, NWNE, SWNE, SENW, NWSE, NESW (258.04 acres) (EOI# 735), T12N, R13W, Sec. 2, SWSENE, Pt. SESWNE, NESE less 2 acres M&B, W2SE, SESW (170 acres) (EOI #741), T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW, Sec. 35, NESW (200 acres) (EOI #742), T9N, R12W, Sec. 29, S2NENE, SENE, Part of SWNE, Part of N2SE (145 acres) (EOI #771), T11N, R15W, Sec. 14, NWSW (40 acres) (EOI #1000), T12N, R16W, Sec. 11, NWNE, NENW, SENW, E2NENWNW, S2NWNW (145 acres) (EOI #1003), Fifth Principal Meridian, Van Buren County, Arkansas.

**EOI #598**

This 8.18 acre tract is located < 1 mile south of the town of Fairbanks and Highway 356. The tract is < 1 mile from a gravel county road. An intermittent stream with a rocky bottom, which was dry on the date surveyed (October 22, 2010), is located on the southern boundary and runs east/west. A ridge top on the east boundary falls away on all sides. This tract consists of a mixed hardwood forest.

**EOI #735**

This 258.04 acre parcel is located < 2 miles north/northwest of the town of Scotland and Highway 95. Several gravel roads run through this property. Eighty to 90% of this tract contains young planted pines with the remaining acreage being early successional mixed hardwoods.

**EOI #741**

This 170 acre tract is located <5 miles north of the town of Shirley and Highway 16. Several paved roads run through the tract. Over 50% of the parcel is cleared for residences and pastures. The forested area of this parcel contains a mixed hardwood forest.

**EOI #742****T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW**

This 160 acre tract is located <2 miles southeast of the town of Botkinburg and Interstate 65. Numerous dirt roads run through the tract. This tract consists of a mixed hardwood forest.

**T12N, R14W, Sec. 35, NESW**

This 40 acre tract is located <5 miles south of the tract above. The tract contains a pine/mixed hardwood forest.

**EOI #771**

This 145 acre tract is located < 2 miles east of the town of Gravesville and < 1 mile north of Highway 124. Approximately 30% of the tract is cleared for residences and outbuildings. The remaining acreage contains a pine/mixed hardwood forest.

**EOI #1000**

This 40 acre tract is located < 1 mile south of the town of Koch Ridge and Highway 16. A gravel road runs east/west through the northern portion of the tract. Approximately 50% of the tract contains planted pines. The remaining acreage contains a pine/mixed hardwood forest.

**EOI #1003**

This 145 acre tract is located ~ 3 miles northwest of the town of Copeland and Highway 16. Several gravel and dirt roads run through the parcel. The tract contains a pine/mixed hardwood forest.

**Description of Project Area**

Based on review of the elements listed on the JFO NEPA Form and consideration of the Purpose and Need statement prepared for this EA, the following elements will be addressed in this EA: Air Quality, Environmental Justice, Cultural Resources, Native American Religious Concerns,

Invasive/Exotic Species, Soils, Special Status Species, Migratory Birds of Concern, Wildlife and Vegetation, Wastes, Hazardous or Solid, Water Quality, Surface/Ground, Wetland/Riparian Areas/Floodplains, and Energy Policy.

### **Air Quality**

The Clean Air Act of 1970, as amended, requires the establishment of National Ambient Air Quality Standards (NAAQS). Both primary and secondary standards are now in effect. Primary standards define levels of air quality that the Administrator of the Environmental Protection Agency (EPA) judges to be necessary, with an adequate margin of safety, to protect public health. Secondary standards define levels of air quality that the Administrator of the EPA judges to be necessary to protect the public from any known or anticipated adverse effects of a pollutant. The NAAQS pollutants are monitored in Arkansas by the Arkansas Department of Environmental Quality (ADEQ 2008). These include carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, total suspended particulate, particulate matter less than 10 microns, and lead.

### **Environmental Justice**

Title IV of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal assistance on the basis of race, color, national origin, age, sex, or disability. Executive Order 12898 on Environmental Justice directs that programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations.

### **Cultural Resources**

There are no known historic properties (36 CFR 800.16(l)) on the tracts. However, the tracts have not been surveyed for cultural resources. The tracts may have sites that would contribute important information about our country's prehistory.

### **Native American Religious Concerns**

Federally recognized Native Americans have been contacted about this proposed undertaking. However, currently, there are no known sites used by Native Americans for religious purposes. There are no known Sacred Sites or traditional cultural properties on these tracts. If any such sites are present, access would be by an agreement between the landowner and the Native Americans. The BLM has no authority over access to these tracts. The BLM's responsibility is limited to the area of surface disturbance if or when a proposal for development is submitted.

### **Invasive Exotic Species**

No exotic species were observed on the areas of interest during the site visits conducted on September 24, 25, 26 and October 14, 22, 23, 24, 2010. However, there are several exotic species with the potential to occur including: Japanese honeysuckle (*Lonicera japonica*), Chinese privet (*Ligustrum sinense*), and sericia lespedeza (*Lespedeza cuneata*).

## Soils

### **EOI #598**

The soils on EOI #598 are Steprock-Mountainburg complex, 8 to 20 percent slopes, and Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes.

The Steprock-Mountainburg complex, 8 to 20 percent slopes, occurs in the southeast corner of the tract. The complex consists of well drained, moderately deep, moderately sloping to moderately steep slope soils. Steprock is usually found on the lower part of hillsides and ridgetops while Mountainburg is found on the upper part of hillsides and narrow ledges. Permeability for the Steprock soil is moderate and for the Mountainburg soil is moderately rapid. The available water capacity for Steprock is low and for Mountainburg is very low. Both soils are strongly acid or very strongly acid throughout. The complex is composed of about 50 percent Steprock soil, 30 percent Mountainburg soil, and 20 percent other soils.

The Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes, occurs throughout the rest of the tract. The complex consists of well drained, deep to shallow, steep, loamy, and stony soils. Steprock is moderately deep and found on the upper part of side slopes and on tops of hills, mountains, and ridges. Nella is deep and found on the colluvial positions on hillsides, mountainsides, and toe slopes. Mountainburg soil is shallow and found on ridgetops and narrow ledges. Permeability is moderate in Steprock and Nella soils and moderately rapid in Mountainburg soils. The available water capacity is low in Steprock soils, moderate in Nella soils, and very low in Mountainburg soils. All types are strongly acid or very strongly acid throughout. The complex is composed of 50 percent Steprock soil, 20 percent Nella soil, 15 percent Mountainburg soil, and 15 percent other soils.

### **EOI #735**

There are 8 soil types in this parcel: Enders-Nella-Steprock, 8-20% slopes; Enders-Nella-Steprock, 20-40% slopes, Enders-Steprock complex, 20-40% slopes, Steprock-Mountainburg complex, 3-8% slopes, Steprock-Mountainburg-Rock outcrop complex, 40-60% slopes, Kenn-Ceda complex, frequently flooded; Linker-Mountainburg complex, 3-8% slopes, and Steprock-Linker complex, 3-8% slopes. Enders-Nella-Steprock 8-20% comprises about 81% of the tract, Enders-Nella-Steprock 20-40% comprises about 3%, Enders-Steprock comprises about 4%, Steprock-Mountainburg comprises about 3%, Steprock-Mountainburg-Rock outcrop comprises about 4%, and the remaining soil types together comprise about 5% of the tract. Enders, Nella, and Steprock are commonly found on the backslope of mountainsides or hillsides. Enders' parent material is clayey residuum weathered from acid shale and Nella and Steprock's parent material is loamy colluvium derived from sandstone and shale. They are well-drained soils with very low to moderate available water capacities. Mountainburg is commonly found on the interflaves of hills. Its parent material is gravelly and stony, loamy residuum weathered from sandstone and siltstone. It is a well-drained soil with a very low available water capacity.

### **EOI #742**

#### **T12N, R15W, Sec. 8 and 9**

There are 4 soil complex types in this parcel: Enders-Steprock complex, 8-20% slopes; Enders-Steprock complex, 20-40% slopes; Kenn-Ceda complex, frequently flooded; and Steprock-Mountainburg-Rock outcrop complex, 40-60% slopes. The Enders-Steprock complexes comprise about 34% of the tract, Kenn-Ceda comprises about 3% of the tract, and Steprock-

Mountainburg-Rock outcrop comprises about 33% of the tract. Enders is commonly found on the backslopes of hillsides and mountainsides. Its parent material is clayey residuum weathered from acid shale. It is a well-drained soil with a moderate available water capacity. Steprock is commonly found on the backslopes and side slopes of hills and benches. Its parent material is loamy colluvium derived from sandstone and shale. It is a well-drained soil with a very low available water capacity. Mountainburg is commonly found on the backslopes of ledges. Its parent material is gravelly and stony, loamy residuum weathered from sandstone and siltstone. It is a well-drained soil with a very low available water capacity. Rock outcrop is commonly found on the backslopes of ledges. Kenn-Ceda is commonly found on flood plains. Its parent material is gravelly and loamy alluvium derived from sandstone and shale and it is well-drained with a low available water capacity.

### **T12N, R14W, Sec. 35**

There are 3 soil types in this parcel: Enders gravelly fine sandy loam, 3-8% slopes; Enders-Steprock complex, 8-20% slopes; and Steprock-Mountainburg-Rock outcrop complex, 40-60% slopes. Enders-Steprock complex comprises about 85% of the tract, Enders comprises about 7% of the tract and is located along the eastern edge, and Steprock-Mountainburg-Rock comprises 8% and is located in the northwestern part. Enders is commonly found on the backslopes of hillsides and mountainsides. Its parent material is clayey residuum weathered from acid shale. It is a well-drained soil with a moderate available water capacity. Steprock is commonly found on the backslopes and side slopes of hills and benches. Its parent material is loamy colluvium derived from sandstone and shale. It is a well-drained soil with a very low available water capacity. Mountainburg is commonly found on the backslopes of ledges. Its parent material is gravelly and stony, loamy residuum weathered from sandstone and siltstone. It is a well-drained soil with a very low available water capacity. Rock outcrop is commonly found on the backslopes of ledges.

### **EOI #1000**

There are 5 soil types in this parcel: Enders gravelly fine sandy loam, 3-8% slopes; Enders-Nella-Steprock complex, 8-20% slopes; Enders-Steprock complex, 20-40% slopes; Steprock-Mountainburg complex, 8-20% slopes, and Steprock-Mountainburg complex, 3-8% slopes. Steprock-Mountainburg complexes comprise about 21% of the tract, while Enders, Enders-Nella-Steprock and Enders-Steprock associations comprise about 79% of the tract. Enders, Nella, and Steprock are commonly found on the backslope of hillsides and mountainsides. Enders parent material is clayey residuum weathered from acid shale. Nella and Steprock have similar parent material of loamy colluvium derived from sandstone and shale. Enders and Nella are both well drained soils with moderate available water capacities and Steprock is well-drained with a very low available water capacity. Mountainburg is commonly found on the backslopes of ledges. Its parent material is gravelly and stony, loamy residuum weathered from sandstone and siltstone. It is a well-drained soil with a very low available water capacity.

### **EOI #1003**

There are 5 soil types in this parcel: Enders gravelly fine sandy loam, 3-8% slopes; Enders-Nella-Steprock complex, 8-20% slopes; Enders-Nella-Steprock complex, 20-40% slopes; Steprock-Mountainburg complex, 8-20% slopes, and Steprock-Mountainburg-Rock outcrop complex, 40-60% slopes. Enders and Enders-Nella-Steprock complexes comprise about 51% of

the tract while Steprock-Mountainburg complexes comprise about 49% of the tract. Enders, Nella, and Steprock are commonly found on the backslope of hillsides and mountainsides. Enders parent material is clayey residuum weathered from acid shale. Nella and Steprock have similar parent material of loamy colluvium derived from sandstone and shale. Enders and Nella are both well drained soils with moderate available water capacities and Steprock is well-drained with a very low available water capacity. Mountainburg is commonly found on the backslopes of ledges. Its parent material is gravelly and stony, loamy residuum weathered from sandstone and siltstone. It is a well-drained soil with a very low available water capacity.

### Special Status Species

The following is a list of special concern and listed species that have been documented in Van Buren County by the Arkansas Natural Heritage Program (ANHP):

Name	Status			Rank	
	Federal	State	Global	State	
<b>Animals - Invertebrates</b>					
<i>Alasmidonta marginata</i> (elktoe)	-	INV	G4	S3	
<i>Allocapnia oribata</i> (bowed snowfly)	-	INV	G1	S1	
<i>Cicindela hirticollis</i> (beach-dune tiger beetle)	-	INV	G5	S2S3	
<i>Cicindela unipunctata</i> (woodland tiger beetle)	-	INV	G4	S2	
<i>Cyclonaias tuberculata</i> (purple wartyback)	-	INV	G5	S3?	
<i>Cyprogenia aberti</i> (western fanshell)	-	INV	G2G3Q	S2	
<i>Lampsilis satura</i> (sandbank pocketbook)	-	INV	G2	S2	
<i>Lampsilis siliquoidea</i> (fatmucket)	-	INV	G5	S3	
<i>Lampsilis streckeri</i> (speckled pocketbook)	LE	INV	G1Q	S1	
<i>Lasmigona costata</i> (flutedshell)	-	INV	G5	S3	
<i>Ligumia recta</i> (black sandshell)	-	INV	G5	S2	
<i>Pleurobema rubrum</i> (pyramid pigtoe)	-	INV	G2G3	S2	
<i>Ptychobranchus occidentalis</i> (Ouachita kidneyshell)	-	INV	G3G4	S3	
<i>Quadrula cylindrica</i> (rabbitsfoot)	-	INV	G3G4	S2	
<i>Simosonaias ambigua</i> (salamander mussel)	-	INV	G3	S1	
<i>Toxolasma lividus</i> (purple lilliput)	-	INV	G2	S2	
<i>Unio merus tetralasmus</i> (pondhorn)	-	INV	G5	S2	
<i>Venustaconcha pleasii</i> (bleedingtooth mussel)	-	INV	G3G4	S3	
<i>Villosa iris</i> (rainbow)	-	INV	G5Q	S2S3	
<i>Villosa lianosa</i> (little spectaclecase)	-	INV	G5	S3	
<b>Animals - Vertebrates</b>					
<i>Ambystoma annulatum</i> (ringed salamander)	-	INV	G4	S3	
<i>Cyprinella spiloptera</i> (spotfin shiner)	-	INV	G5	S1	
<i>Empidonax traillii</i> (Willow Flycatcher)	-	INV	G5	S1B,S3N	
<i>Emmystax harryi</i> (Ozark chub)	-	INV	G3G4Q	S3S4	
<i>Etheostoma moorei</i> (yellowcheek darter)	C	INV	G1	S1	
<i>Haliaeetus leucocephalus</i> (Bald Eagle)	-	INV	G5	S2B,S4N	
<i>Myotis grisescens</i> (gray myotis)	LE	INV	G3	S2S3	
<i>Notropis ozarkanus</i> (Ozark shiner)	-	INV	G3	S2	
<i>Percina nasuta</i> (longnose darter)	-	INV	G3	S2	
<i>Regina septemvittata</i> (queen snake)	-	INV	G5	S2	
<b>Plants - Vascular</b>					
<i>Arabis shortii</i> var. <i>shortii</i> (Short's rockcress)	-	INV	G5T5	S1	
<i>Asplenium plinnatifidum</i> (lobed spleenwort)	-	INV	G4	S3	
<i>Callirhoe bushii</i> (Bush's poppy mallow)	-	INV	G3	S3	
<i>Carex careyana</i> (Carey's caric sedge)	-	INV	G4G5	S3	
<i>Carex sparganioides</i> (a caric sedge)	-	INV	G5	S3	
<i>Castanea pumila</i> var. <i>ozarkensis</i> (Ozark chinquapin)	-	INV	G5T3	S3S4	
<i>Caulophyllum thalictroides</i> (blue cohosh)	-	INV	G4G5	S2	
<i>Claytonia ozarkensis</i> (Ozark spring beauty)	-	INV	G1G3Q	S2	
<i>Cuscuta coryli</i> (hazel dodder)	-	INV	G5?	SU	
<i>Delphinium newtonianum</i> (Moore's larkspur)	-	INV	G3	S3	
<i>Diphasiastrum digitatum</i> (southern running-pine)	-	INV	G5	S1S2	
<i>Dryopteris x leedsii</i> (Leed's hybrid log fern)	-	INV	GNA	S1	

Name	Status		Rank	
	Federal	State	Global	State
<i>Eriocaulon koernickianum</i> (small-headed pipewort)	-	SE	G2	S2
<i>Nemastylis nuttallii</i> (Nuttall's pleat-leaf)	-	INV	G4	S2
<i>Paronychia virginica</i> (nailwort)	-	INV	G4	S2
<i>Podostemum ceratophyllum</i> (riverweed)	-	INV	G5	S3
<i>Sanicula smallii</i> (black snakeroot)	-	INV	G5	S3
<i>Scirpus muhlenbergii</i> (Muhlenberg's nutsedge)	-	INV	G5	S1S2
<i>Silene ovata</i> (ovate-leaved catchfly)	-	ST	G3	S3
<i>Solidago ptarmicoides</i> (white-flowered goldenrod)	-	INV	G5	S1S2
<i>Symphotrichum sericeum</i> (silky aster)	-	INV	G5	S2
<i>Valerianella ozarkana</i> (Ozark comsalad)	-	INV	G3	S3
<i>Viola canadensis</i> var. <i>canadensis</i> (Canada violet)	-	INV	G5T5	S2

Note: LE = Endangered, INV = Inventory Element, currently being inventoried for by the ANHC, SE = State Endangered, S1 = critically imperiled in Arkansas because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extirpation, S2 = imperiled in Arkansas because of rarity (6 to 20 known extant populations) or because of some factor(s) making it very vulnerable to extirpation, S3 = rare and local throughout the state or found locally (even abundantly at some of its locations) in a restricted region of the state, or because of other factors making it vulnerable to extirpation (21 to 100 known extant populations), S4 = Common, apparently secure.

No special concern species were observed during field surveys however, three federally listed species have been documented in Van Buren County; speckled pocketbook (*Lampsilis streckari*), gray myotis (*Myotis grisescens*), yellowcheek darter (*Ethiostoma morrei*). The speckled pocketbook prefers constantly flowing rivers and does not seem to survive in slow moving pools or stretches of river with intermittent flow. Only one of these EOIs (#598) contains a stream and it was dry on the date surveyed and therefore does not provide adequate habitat for this species. The gray myotis is a cave obligate for roosting year round. There are no caves on the nominated parcels. Therefore this species is unlikely to occur. The yellowcheek darter occupies small to medium high gradient, clear rivers, in swift to moderate riffles, with gravel, rubble, or boulder bottoms. Their range encompasses the Little Red River drainage above Greers Ferry Lake in Cleburne, Searcy, and Van Buren Counties. Remaining populations occur in the following tributaries: South Fork, Middle Fork, Archey Creek, and Devil's Fork. None of these tributaries occur on the nominated parcels. Therefore it is unlikely that the yellowcheek darter occurs on these tracts.

### Migratory Bird Species of Concern

The following provides a list of migratory birds of conservation concern with the potential to occur on some of the nominated parcels based on their preferences for pine/mixed hardwood forests (EOI #735, #741, #742, #771, #1000, and #1003) (Peterson 1980, Hamel 1992, USFWS 2002) :

Species	Habitat Suitability
American swallow-tailed kite	Marginal
Chuck-will's-widow	Optimal
Red-headed woodpecker	Marginal
Scissor-tailed flycatcher	Marginal
Brown-headed nuthatch	Marginal
Wood thrush	Suitable
Bell's vireo	Marginal

Prairie warbler	Marginal
Worm-eating warbler	Marginal
Kentucky warbler	Marginal
Harris's sparrow	Marginal

The following provides a list of migratory birds of conservation concern with the potential to occur based on species preference for mixed hardwood forests (EOI #598).

Species	Suitability of Habitat
Chuck's will's widow	Marginal
Red-headed woodpecker	Suitable
Acadian flycatcher	Suitable
Scissor-tailed flycatcher	Marginal
Bell's Vireo	Marginal
Woodthrush	Optimal
Cerulean warbler	Suitable
Worm-eating warbler	Suitable
Kentucky warbler	Suitable
Louisiana waterthrush	Suitable
Harris' sparrow	Marginal
Orchard Oriole	Marginal

## **Wildlife and Vegetation**

### **EOI #598**

This 8.18 acre tract is located < 1 mile south of the town of Fairbanks and Highway 356. The tract is < 1 mile from a gravel county road. An intermittent stream with a rocky bottom, which was dry on the date surveyed (October 22, 2010), is located on the southern boundary and runs east/west. A ridge top on the east boundary falls away on all sides. This tract consists of a mixed hardwood forest. Dominant tree species include: red cedar (*Juniperus virginiana*), white oak (*Quercus alba*), shagbark hickory (*Carya ovata*), winged elm (*Ulmus alata*) and blackjack oak (*Q. marilandica*). Oaks range in height from 40 – 45 ft and hickory trees range from 25 – 30 ft. This forest consists of little understory with some muscadine and green briar vines.

Common mammal species that are likely to occur on the tract due to their preferences for mixed hardwood forests include: white-tailed deer (*Odocoileus virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), evening bat (*Nycticeius humeralis*), Eastern woodrat (*Neotoma floridana*), and coyote (*Canis latrans*). Bird species that could occur include: swallow-tailed kite (*Elanoides forficatus*), Mississippi kite (*Ictinia mississippiensis*), bachman's warbler (*Vermivora bachmanii*), red-shouldered hawk (*Buteo lineatus*), yellow-billed cuckoo (*Coccyzus americanus*), and barred owl (*Strix varia*). Amphibians and reptiles that likely occur are: marbled salamander (*Ambystoma opacum*), southern dusky salamander (*Desmognathus auriculatus*), and eastern cricket frog (*Acris crepitans crepitans*).

**EOI #735**

This 258.04 acre parcel is located < 2 miles north/northwest of the town of Scotland and Highway 95. Several gravel roads run through the property. Eighty to 90% of this tract consists of young planted pines with the remaining acreage being early successional mixed hardwoods. Dominant tree species included: loblolly pine (*Pinus taeda*), blackjack oak, red cedar, shagbark hickory, and red maple (*Acer rubrum*). Shrub species include winged sumac (*Rhus copallina*) and beauty berry (*Callicarpa americana*).

Wildlife diversity is probably limited on this tract due to the homogenous nature of the parcel and small young trees. However, species likely to occur include: nine-banded armadillo, American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), red-headed woodpecker (*Melanerpes erythrocephalus*), speckled kingsnake (*Lampropeltis holbrooki*) and dwarf American toad (*Anaxyrus americanus charlesmithi*).

**EOI #741**

This 170 acre tract is located <5 miles north of the town of Shirley and Highway 16. Several paved roads run through the parcel. Over 50% is cleared for residences and pastures. The forested area contains a pine/mixed hardwood forest. Dominant tree species include blackjack oak, red cedar, sweetgum (*Liquidambar styraciflua*), loblolly pine, post oak (*Q. stellata*), white oak, and red maple with trees ranging in height from 30 – 45 ft.

Wildlife species likely to occur include: Virginia opossum (*Didelphis virginiana*), southern short-tailed shrew (*Blarina caroliniensis*), big brown bat (*Eptesicus fuscus*), evening bat, and golden mouse (*Ochrotomys nuttalli*). Bird species that likely occur on this tract include: chuck-will's-widow (*Caprimulgus carolinensis*), great crested flycatcher (*Myiarchus crinitus*), blue jay (*Cyanocitta cristata*), and Carolina chickadee (*Poecile carolinensis*). Reptile and amphibian species likely to occur include: southern leopard frog (*Rana utriculara*), northern cricket frog (*Acris crepitans crepitans*), southern copperhead (*Agkistrodon contortrix phaeogaster*), speckled kingsnake, and box turtle (*Terrapene carolina triunguis*).

**EOI #742****T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW**

This 160 acre tract is located <2 miles southeast of the town of Botkinburg and Interstate 65. Numerous dirt roads run through the tract. The tract consists of a pine/mixed hardwood forest. Dominant tree species include: white oak, shagbark hickory, red maple, loblolly pine, sassafras (*Sassafras albidum*), common persimmon (*Diospyros virginiana*), post oak, and flowering dogwood (*Cornus florida*) with trees reaching up to 50 ft.

**Sec. 35, NESW**

This 40 acre tract is located <5 miles south of the tract above. The tract contains a pine/mixed hardwood forest. Dominant tree species include: loblolly pine, white oak, red maple and shagbark hickory.

Mammal species likely to occur on both tracts due to their preferences for pine/mixed hardwood forests include: white-tailed deer, southern flying squirrel (*Glaucomys volans*), and evening bat. Bird species that likely occur on this tract include: chuck-will's-widow, blue jay, and Carolina

chickadee. Reptile and amphibian species likely to occur include: fowler's toad (*Bufo woodhousii fowleri*), northern cricket frog, black rat snake (*Elaphe obsoleta*), speckled kingsnake, and box turtle.

#### **EOI #771**

This 145 acre tract is located < 2 miles east of the town of Gravesville and < 1 mile north of Highway 124. Approximately 30% of the tract is cleared for residences and outbuildings. The remaining acreage contains a pine/mixed hardwood forest. Dominant tree species include: blackjack oak, red cedar, shortleaf pine (*P. echinata*), and white oak with trees reaching 30 – 45 ft.

Mammal species likely to occur on the tract due to their preferences for mixed hardwood forests include: nine-banded armadillo (*Dasypus novemcinctus*), eastern fox squirrel (*Sciurus niger*), and red bat (*Lasiurus borealis*). Bird species that likely occur on this tract include: chuck-will's-widow, blue jays, and Carolina chickadee. Reptile and amphibian species likely to occur include: fowler's toad, southern copperhead (*Agkistrodon contortrix phaeogaster*), speckled kingsnake, and box turtle.

#### **EOI #1000**

This 40 acre tract is located < 1 mile south of the town of Koch Ridge and Highway 16. A gravel road runs east/west through the northern portion of the tract. Approximately 50% of the tract contains planted pines. The remaining acreage contains a pine/mixed hardwood forest. Dominant tree species include; loblolly pine, sweetgum, shagbark hickory, and white oak.

Mammal species likely to occur on the tract due to their preferences for pine/mixed hardwood forest include: white-tailed deer, southern flying squirrel, evening bat and red bat. Bird species that likely occur on this tract include: chuck-will's-widow, blue jays, and Carolina chickadee. Reptile and amphibian species likely to occur include: fowler's toad, northern cricket frog, broadhead skink (*E. laticeps*), southern copperhead, and speckled kingsnake

#### **EOI #1003**

This 145 acre tract is located ~ 3 miles northwest of the town of Copeland and Highway 16. Several gravel and dirt roads run through the tract. The tract contains a pine/mixed hardwood forest. Dominant tree species include: loblolly pine, sweetgum, red maple, and white oak.

Wildlife that may be present however include: eastern cottontail (*Sylvilagus floridanus*), red bat, lark sparrow (*Chondestes grammacus*), turkey vulture, common grackle (*Quiscalus quiscula*), black rat snake, and broadhead skink.

#### **Wastes, Hazardous or Solid**

During the on site inspections, no hazardous or solid waste disposal site were found on the lease tracts.

### **Water Quality, Surface/Ground**

The Western Interior Plains confining system is part of a widespread, thick, geologically complex, poorly permeable, sedimentary sequence. The system consists of a sequence of shale, sandstone, and limestone of Mississippian to Pennsylvanian age. Individual geologic units or parts of units within the confining system yield as much as 19 gallons per minute to wells. The confining system is, therefore, considered to be a minor aquifer. Water levels within the Western Interior Plains confining system can fluctuate as much as 10 feet per year in response to seasonal variations in rainfall and evapotranspiration. These water-level fluctuations are directly attributed to the nature of the fractures in the rocks that compose the water-yielding zones. The quality of ground water in the system is highly variable but meets most secondary drinking-water standards and is considered to be suitable for domestic and livestock uses. The quality of the water generally is not considered to be adequate for municipal supply. Principal constituents in the water are sodium and bicarbonate ions. Saline water is reported at depths that range from 500 to 2,000 feet below land surface (ADEQ 2008).

### **Wetlands/Riparian Areas/Floodplains**

A thin intermittent creek, that was dry on the date surveyed (October 22, 2010), runs through EOI #598.

### **Energy Policy**

The area contains no features related to energy development, production, supply or distribution.

## **Ch. 4 - ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES**

### **Introduction**

This chapter assesses potential environmental consequences associated with direct, indirect, and cumulative effects of the Proposed Action and alternatives.

Based on review of the elements listed on the JFO NEPA Form and consideration of the Purpose and Need statement prepared for this EA, the following elements will be addressed in this EA: Air Quality, Environmental Justice, Cultural Resources, Native American Religious Concerns, Invasive/Exotic Species, Soils, Special Status Species, Migratory Birds of Concern, Wildlife and Vegetation, Wastes, Hazardous or Solid, Water Quality, Surface/Ground, Wetland/Riparian Areas/Floodplains, and Energy Policy.

### **Air Quality**

If the lease is developed for oil and gas production, impacts to air quality associated with construction, drilling, production and abandonment could come from the following sources: (1.) fugitive dust generated from vehicle traffic along dirt or gravel roads during transportation of

employees and equipment; (2.) exhaust from heavy machinery, vehicles, compressors, drilling rig prime movers, generators, and other internal combustion engines used during site construction, drilling, flowline installation, production, and abandonment and other production equipment such as pumps, separators, heater treaters, boilers; and (3.) fugitive volatile organic compounds (VOC) escaping from leaky pipe valves, flanges, and storage tanks during loading of crude on to tank trucks, and accidental releases/spills of hydrocarbons.

Fugitive dust created during road, drill pad, flowline construction, and abandonment would increase suspended particulates in the air. Also, the regulated air pollutants nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), VOC, and particulates (Pm) will be emitted from the above referenced sources. These conditions could temporarily impact the ambient air quality in the immediate vicinity of the leased area. The generation of suspended particulates, a regulated pollutant, could cause a temporary and localized disturbance to people who work in the area. However, the impacts from the combined frequency and volume of fugitive dust and regulated air pollutants are expected to be minimal, very localized, and of short duration.

### **Environmental Justice**

There is no adverse human health and environmental effects anticipated from potential development on minority and low-income populations in the areas surrounding this tract.

### **Cultural Resources and Native American Religious Concerns**

Cultural resource surveys have not been conducted, therefore direct and indirect impacts may occur to cultural resources or to a potentially sacred Native American religious site if there is ground disturbance. Direct impacts are those such as completely destroying a site by bulldozing the area and workers picking up artifacts. Indirect impacts are those such as erosion or compaction of the soil on the site. However, if sites are located and recorded before ground disturbance begins, these impacts can be avoided or mitigated.

A Stipulation regarding cultural resources and Native American religious concerns applies to this lease (Appendix B). The Stipulation states that the BLM will not approve any ground disturbing activities that may affect historic properties and/or resources until it completes its obligations under applicable requirements of the National Historic Preservation Act (NHPA) and other authorities. If currently unknown burial sites are discovered during development activities associated with this lease, these activities must cease immediately, applicable law on unknown burials will be followed and, if necessary, consultation with the appropriate tribe/group of federally recognized Native Americans will take place.

### **Invasive/Exotic Species**

Surface disturbance could result in increased occurrence of invasive and exotic species. The Natural Resource Conservation Service (NRCS) provides guidelines for mulching, preparation, and planting of vegetation during site restoration (NRCS 1999). Native species are preferred for site restoration. Because of unreliable and/or slow germination and establishment rates of native species, however, site restoration typically is accomplished with a mixture of native and

nonnative species. The nonnative species are quickly established to provide erosion control and wildlife support and are slowly replaced by native species (both by species that have been planted and by those recruited from the surrounding area over time).

NRCS (2002) provides useful information for critical area planting. A list of species suitable for restoration if drilling occurred at these sites would include some or all of the following species (i.e., a mixture of both cool- and warm-season species, both introduced and native species, and annual and perennial species): orchardgrass (annual), foxtail millet (annual), browntop millet (annual), Japanese millet (annual), Kobe lespedeza (annual), Eastern gamagrass (perennial), and switchgrass (perennial). Annual species would be replaced by native perennial species, including woody species recruited from the surrounding area, with the passage of time.

A Lease Notice found in Appendix B provides information on how to discourage the spread of invasive, non-native plants. The use of native or non-invasive plants in seeding mixtures should be encouraged to stabilize disturbed areas and during restoration activities. Construction sites will be surveyed for invasive species prior to ground disturbance. If invasive species are found, the proper control measures will be used to either eradicate the species from the area or minimize its spread to other areas.

### **Soils**

Well site and access road construction would have direct impacts to soils. These impacts would be limited to those areas where vegetation is removed and construction occurs. The direct impacts would be of two types: (1) physical removal, leveling and mixing of surface soils and (2) soil compaction. The first impact would be caused by site preparation for construction of the well pad, related structures, road construction, flowline construction and wind and water erosion after vegetation is removed. This would cause a mixing of soil horizons and cause a short term loss of soil productivity. The second impact, soil compaction, would be caused by vehicle and machinery travel. Compaction decreases air and water infiltration into the soil profile thus reducing soil productivity. The indirect impact would be that of erosion and siltation of drainages and streams. Prompt cultivation and re-vegetation of impacted soil areas should reduce the possibility of soil erosion thus preventing an increase of siltation into drainages or streams from run-off. Site specific conditions of approval would be developed prior to approval of an APD to address soil erosion.

### **Special Status Species**

Although no special status species are known or expected to occur on the proposed lease parcels, Stipulations and Lease Notices regarding rare species apply to this lease (Appendix B) and are applicable for all the nominated parcels, due to potential future changes in species habits, habitat, and range and changes in our knowledge thereof. The Stipulation states that the BLM may recommend modifications to exploration and development proposals to further the conservation and management objectives for special status plant or animal species or their habitat to avoid BLM-approved activity that would contribute to a need to list such a species or their habitat. The Lease Notice gives recommendations for disposing produced water in such a way as to protect aquatic habitats for and to avoid potential impacts to special status fish, mussels, turtles, snails, plants, and migratory birds.

To protect threatened, endangered, candidate, proposed, and BLM sensitive plant species a second Stipulation applies to this lease and applies to all proposed parcels. The Stipulation states that all suitable special status plant species habitat will be identified during environmental review of any proposed surface use activity. If field examination indicates that habitat of one or more of these species is present, the BLM will require a survey by a qualified botanist for special status plants during periods appropriate to each species. Operations will not be allowed in areas where sensitive plants would be affected.

### **Migratory Bird Species of Concern**

The list of migratory birds that have the potential to occur on the proposed tracts are based on the presence of pine/mixed hardwood forests or mixed hardwood forests. Nesting and foraging habitat for birds will be altered dramatically if forests are cut for oil and gas development. Many of the species with the potential to occur on these tracts could move to similar habitats in surrounding areas. After the well is put into production and during reclamation activities bird species diversity would be altered depending on successional stage of the site and adequacy of restoration efforts.

To protect perch and roosting sites and terrestrial habitats for and to avoid potential impacts to migratory birds and federally listed wildlife a Lease Notice found in Appendix B provides recommendations regarding reserve pits, maximum design speeds for roads, and powerline construction to minimize effects on migratory birds.

### **Wildlife and Vegetation**

The Reasonable Foreseeable Development Scenario (RFDS) for EOI #598 predicts that multiple wells will be drilled from 1 existing pad. The total disturbance predicted would be 8.16 acres, with 4.9 acres disturbed for the well pad and pit, 3.6 acres for the access road, and 0.34 acres reclaimed (Appendix D). The RFD for EOI #735 predicts that 3 wells will be drilled from 2 pads. The total disturbance predicted would be 10.50 acres, with 9.80 acres disturbed for the well pads and pits, 1.38 acres for the access road, and 0.68 acres reclaimed (Appendix D). The RFD for EOI #741 predicts that 5 wells will be drilled from 2 pads. The total disturbance predicted would be 9.94 acres, with 9.8 acres disturbed for the well pads and pits, 0.82 acres for the access road, and 0.68 acres reclaimed (Appendix D). The RFD for EOI #742 predicts that 4 wells will be drilled from 2 pads. The total disturbance predicted would be 10.84 acres, with 9.8 acres disturbed for the well pads and pits, 1.72 acres for the access road, and 0.68 acres reclaimed (Appendix D). The RFD for EOI #771 predicts that 3 wells will be drilled from a pre-existing pad. Because this is a pre-existing pad and access road no additional disturbance will occur. The RFD for EOI #1000 predicts that 2 wells will be drilled from 1 pad. The total disturbance predicted would be 5.04 acres, with 4.9 acres disturbed for the well pads and pits, 0.48 acres for the access road, and 0.34 acres reclaimed (Appendix D). The RFD for EOI #1003 predicts that 5 wells will be drilled from 2 pads. The total disturbance predicted would be 9.64 acres, with 9.8 acres disturbed for the well pads and pits, 0.52 acres for the access road, and 0.68 acres reclaimed (Appendix D).

Many of the species expected to occur on these sites have broad habitat requirements and would continue to be found in a variety of habitats in the surrounding areas. Wildlife use of the sites after the wells are put into production would vary depending on vegetation and succession stage. Once put into production the well pads would be reduced in size and the reserve pits would be graded and seeded. The producing well sites would be subject to regular maintenance and inspection. Wildlife use of the sites is dependent on the adequacy of restoration. However, over the life of the wells, some of the acreage would be excluded from utilization by most wildlife species.

To prevent birds and bats from entering or nesting in or on open vent stack equipment a Lease Notice has been developed and applies to this lease. The Lease Notice states that open vent stack equipment, such as heater-treaters, separators, and dehydrator units, should be designed and constructed to prevent birds and bats from entering or nesting in or on such units and, to the extent practical, to discourage birds from perching on the stacks. Installing cone-shaped mesh covers on all open vents is one suggested method. Flat mesh covers are not expected to discourage perching and will not be acceptable.

### **Wastes, Hazardous or Solid**

The operations would typically generate the following wastes; (a) discharge of drilling fluids and cuttings into the reserve pits, (b) wastes generated from used lubrication oils, hydraulic fluids, and other fluids used during production of oil and gas, some of which may be characteristic or listed hazardous waste, and (c) service company wastes from exploration and production activities as well as containment of some general trash. Certain wastes unique to the exploration, development, and production of crude oil and natural gas have been exempted from Federal Regulations as hazardous waste under Subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976. The exempt waste must be intrinsic to exploration, development or production activities and is not generated as part of a transportation or manufacturing operation. The drilling fluids, drill cuttings, and produced waters are classified as a RCRA exempt waste, and the proposed action would not introduce hazardous substances into the environment if they are managed and disposed of properly under Federal, State, and local waste management regulations and guidelines.

### **Water Quality, Surface/Ground**

Construction would cause some minor erosion and re-deposition of soil a short distance away from the construction areas. Site specific conditions of approval would be developed prior to approval of an APD to protect surface water quality. This may include but is not limited to construction of ditches, berms, terraces or other similar structures. Areas not needed for production would be reclaimed and stabilized to control erosion.

Improper casing and/or cementation can result in contamination of ground water aquifers. The BLM requires that the operator must isolate freshwater-bearing formations and other usable water containing 10,000 ppm or less of total dissolved solids (TDS) and other mineral-bearing formations and protect them from contamination by using proper casings. In addition, the BLM requires lining the reserve and water pit with a suitable liner on a case-by-case basis.

To protect the water quality of watersheds and natural stream substrate and morphology and to avoid potential impacts to aquatic species and their habitat a Stipulation has been developed and applies to this lease (Appendix B). The Stipulation states that no surface occupancy or disturbance, including discharges, are permitted within 250 feet of a river, stream, wetland spring, headwater, wet meadow, wet pine savanna, pond, tributary, lake, coastal slough, sand bar, vernal pools, calcareous seepage marsh, or small, marshy calcareous stream. If the slope exceeds 10 percent, the buffer may be extended to 600 feet to provide adequate protection for aquatic habitats and associated species.

To protect the water quality of watersheds and natural stream substrate and morphology supporting special status species and their host species a Lease Notice also applies to this lease. The Lease Notice states that any ground application of herbicides or other pesticides, sterilants, or adjuvants within 150 feet of listed species or habitat will require site-specific control measures developed in coordination or formal consultation with USFWS. No aerial application of herbicides or pesticides will be permitted

### **Wetlands/Riparian Areas/Floodplains**

No disturbance would be permitted within 250 feet of streams, rivers, wetlands or springs.

### **No Action**

Under this alternative, the parcels within the proposed action would remain unleased at this point in time. It could be offered for leasing in the future, but may be subject to additional environmental analysis at that point in time. If the parcels were not leased there would be no direct impacts to the potential drill location and therefore no effects on all of the critical elements above except Cultural Resources and Native American Religious Concerns (see below). As compared to the proposed action, there would be less disturbance resulting from oil and gas related actions.

### **Cultural Resources**

If the areas are not leased and cultural resource surveys are not conducted, direct and indirect impacts may occur. Direct impacts are those such as completely destroying a site by "relic hunters" or by people picking up artifacts. Other direct impacts may be the mixing of layers in a site by plowing or the destruction of a site by land leveling. Indirect impacts are those such as after timber thinning or clear-cutting erosion of the remains of a site. Hunting activities may cause other impacts to the surface such as the deposition of spent ammunition shells and other items. However, the use of the properties are the purview of the land owner, and any cultural resource site and its artifacts are the property of the land owner.

### **Native American Religious Concerns**

Under this alternative, places of Native American Religious Practice could be impacted by activities of the landowner, unless there was a formal agreement between the landowner and the

Native American tribe. Direct impacts could be the destruction of a site, and an indirect impact could be the landowner placing a fee on the use of the area.

### **Cumulative Impacts**

Cumulative impacts are the impacts to the environment which result from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions. Since the proposed action would not authorize surface occupancy, no environmental impacts are anticipated on the lease. Hence, the proposed action will not contribute to the impacts to other past, present, or reasonable foreseeable actions. For Cultural Resources and Native American Religious Concerns this is dependent upon cultural resource surveys being conducted.

### **Energy Policy**

Energy Policy Act of 2005 – Sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

### **Title III: Oil and Gas**

#### **Subtitle B: Natural Gas**

(Sec. 313) Designates FERC as the lead agency for coordinating federal permits and other authorizations and compliance with the National Environmental Policy Act of 1969 (NEPA). Directs FERC to establish a schedule for all federal authorizations.

#### **Subtitle C: Production**

(Sec. 322) Amends the Safe Drinking Water Act to exclude from the definition of underground injection the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil or gas, or geothermal production activities.

#### **Subtitle F: Access to Federal Lands**

(Sec. 361) Requires the Secretary of the Interior to perform an internal review of current federal onshore oil and gas leasing and permitting practices.

(Sec. 364) Amends the Energy Act of 2000 to revise the requirement that the Secretary of the Interior, when inventorying all onshore federal lands, identify impediments or restrictions upon oil and gas development.

(Sec. 366) Amends the Mineral Leasing Act to set deadlines for an expedited permit application process.

(Sec. 368) Prescribes guidelines governing energy right-of-way corridors on federal land.

Directs the Secretaries of Agriculture, of Commerce, of Defense, of Energy, and of the Interior (the Secretaries), in consultation with FERC, states, tribal or local government entities, affected utility industries, and other interested persons, are directed to consult with each other and to: (1) designate corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on federal land in the 11 contiguous Western States; (2) incorporate the

designated corridors into the relevant energy land use and resource management or equivalent plans; and (3) ensure that additional corridors are promptly identified and designated.

(Sec. 371) Amends the Mineral Leasing Act to cite conditions for the reinstatement of oil and gas leases terminated for certain failure to pay rentals.

#### **Subtitle G: Miscellaneous**

(Sec. 390) States that action by the Secretary of the Interior in managing the public lands, or the Secretary of Agriculture in managing National Forest System Lands, with respect to certain oil or gas drilling related activities shall be subject to rebuttable presumption that the use of a categorical exclusion under NEPA would apply if the activity is conducted pursuant to the Mineral Leasing Act for the purpose of exploration or development of oil or gas.

### **CH. 5 - LIST OF AGENCIES AND PERSONS CONSULTED**

The following agencies/tribes were contacted:

Arkansas State Historic Preservation Office

Quapaw Nation

Osage Nation

Wichita and Affiliated Tribes

Choctaw Nation of Oklahoma

Chickasaw Nation

Cherokee Nation of Oklahoma

United Keetoowah Band of Cherokee Indians

Seminole Nation of Oklahoma

Muscogee (Creek) Nation of Oklahoma

Thlopthlocco Tribal Town

Caddo Indian Tribe of Oklahoma

Tunica - Biloxi Tribe

Eastern Shawnee Tribe of Oklahoma

Delaware Nation

Absentee-Shawnee Tribe

Delaware Trust Board

Shawnee Tribe

#### **Literature Cited**

ADEQ, Arkansas Department of Environmental Quality. 2008. 2008 - Integrated Water Quality Monitoring and Assessment Report. ADEQ. Arkansas.

Hamel, P. 1992. The Land Manager's Guide to the Birds of the South. The Nature Conservancy. Atlanta Georgia. 367 pp.

Peterson, R. 1980. Birds of Eastern and Central North America. Houghton Mifflin Company. New York. 427 pp.

USFWS, U.S. Fish and Wildlife Service. 2002. Birds of Conservation Concern. USFWS.

USFWS, U.S. Fish and Wildlife Service. 2007. Best management practices for Fayetteville Shale natural gas activities. U.S. Fish and Wildlife Service. Conway, Arkansas. 30 pp.

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**Title, Organization**

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Archeologist

Brian Kennedy

Physical Scientist

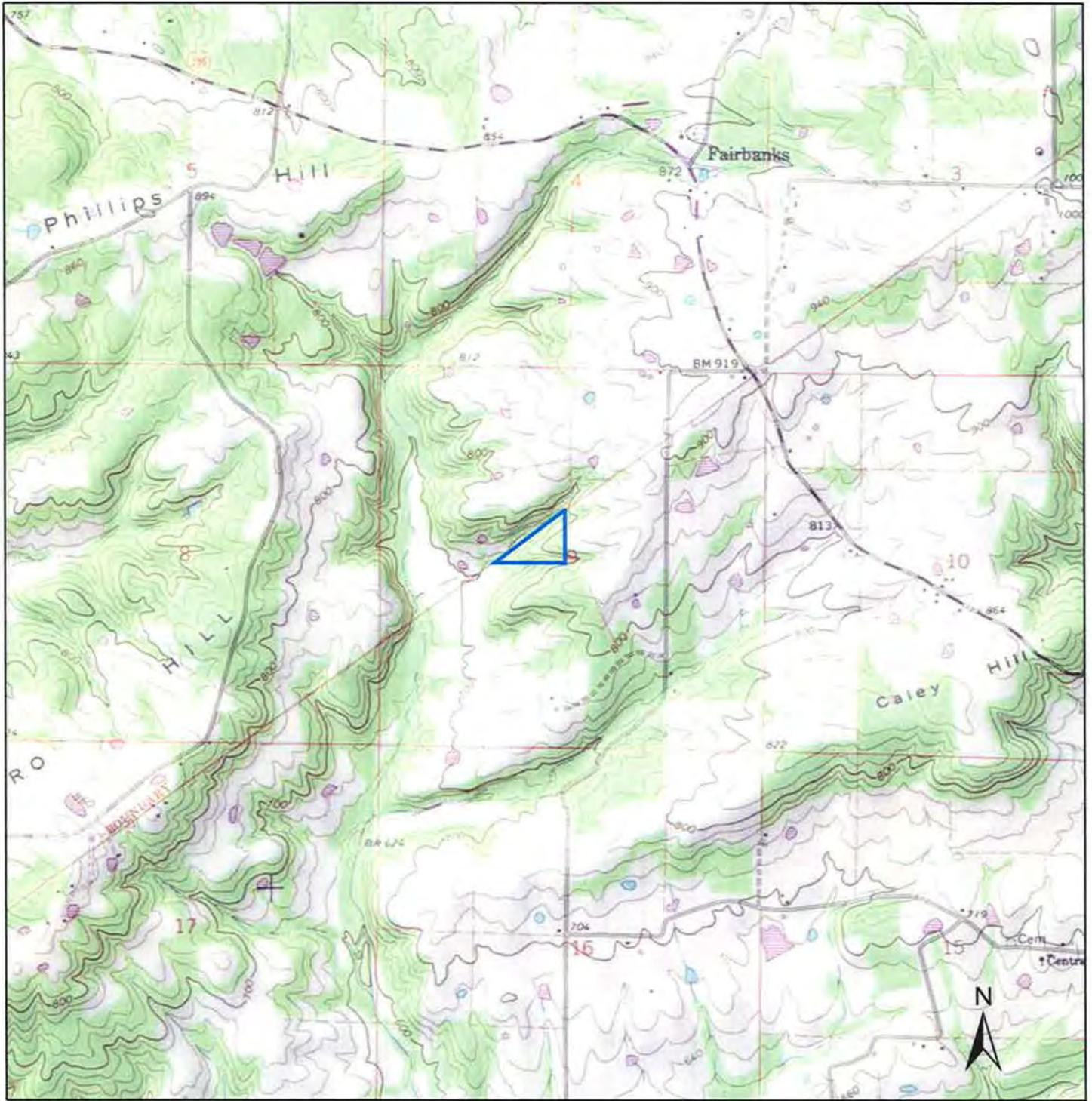
Gary Taylor

Planning and Environmental Coordinator

**APPENDIX A**

**Proposed Lease Tract Locations**

Proposed Federal Oil and Gas Lease  
EOI 598



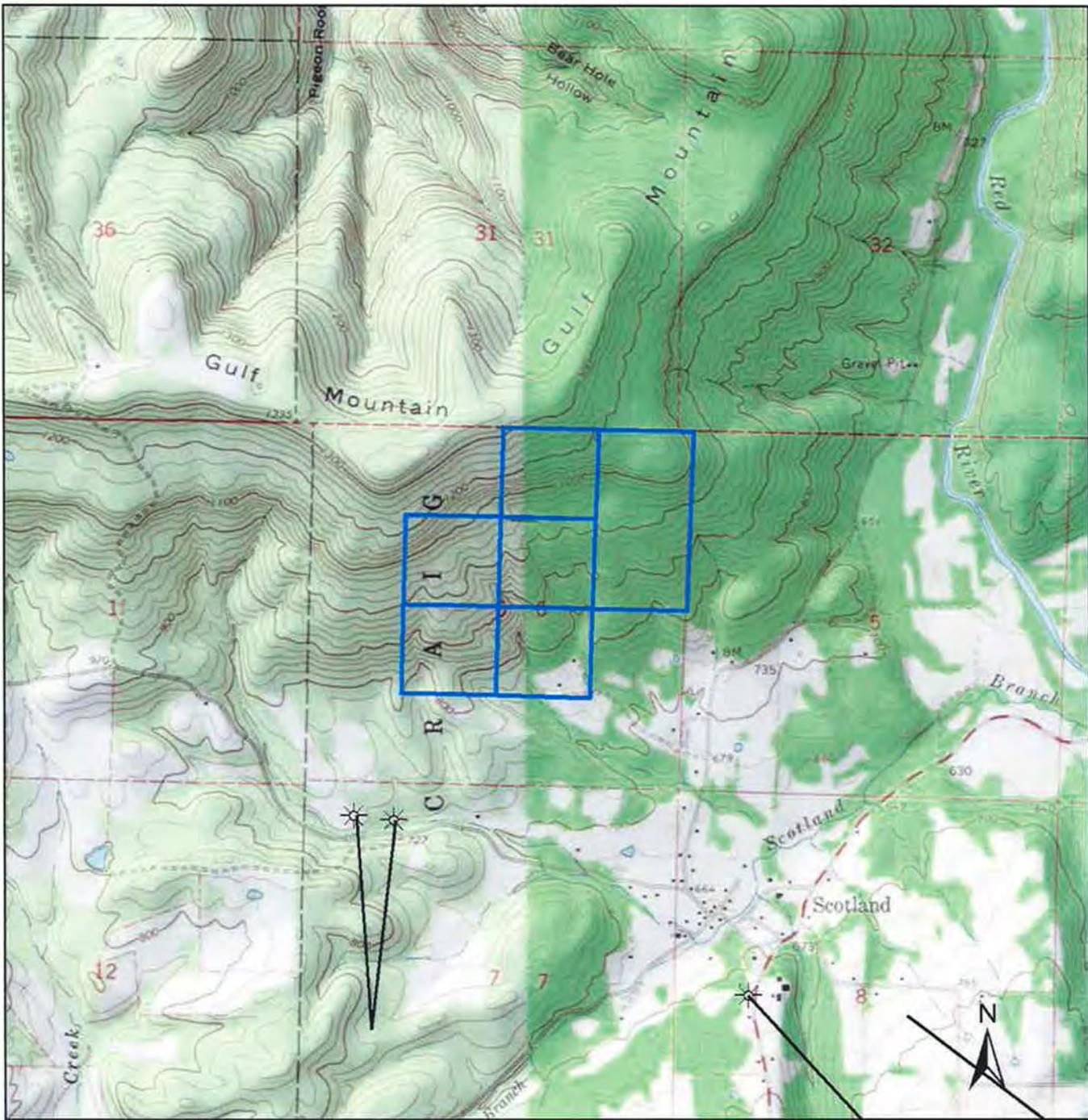
 Proposed Lease Area

2,000 1,000 0 2,000 4,000 6,000 Feet

Proposed Lease Area  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 9N., R. 12W., Sec.9, Lot 1 of the NW1/4  
Approximately 8.18 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi 39206

Proposed Federal Oil and Gas Lease  
EOI 735



Proposed Lease Area  
**Oil and Gas Wells**  
 Gas  
 Well Bore



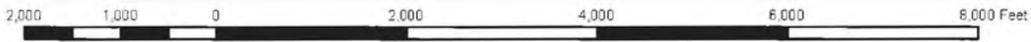
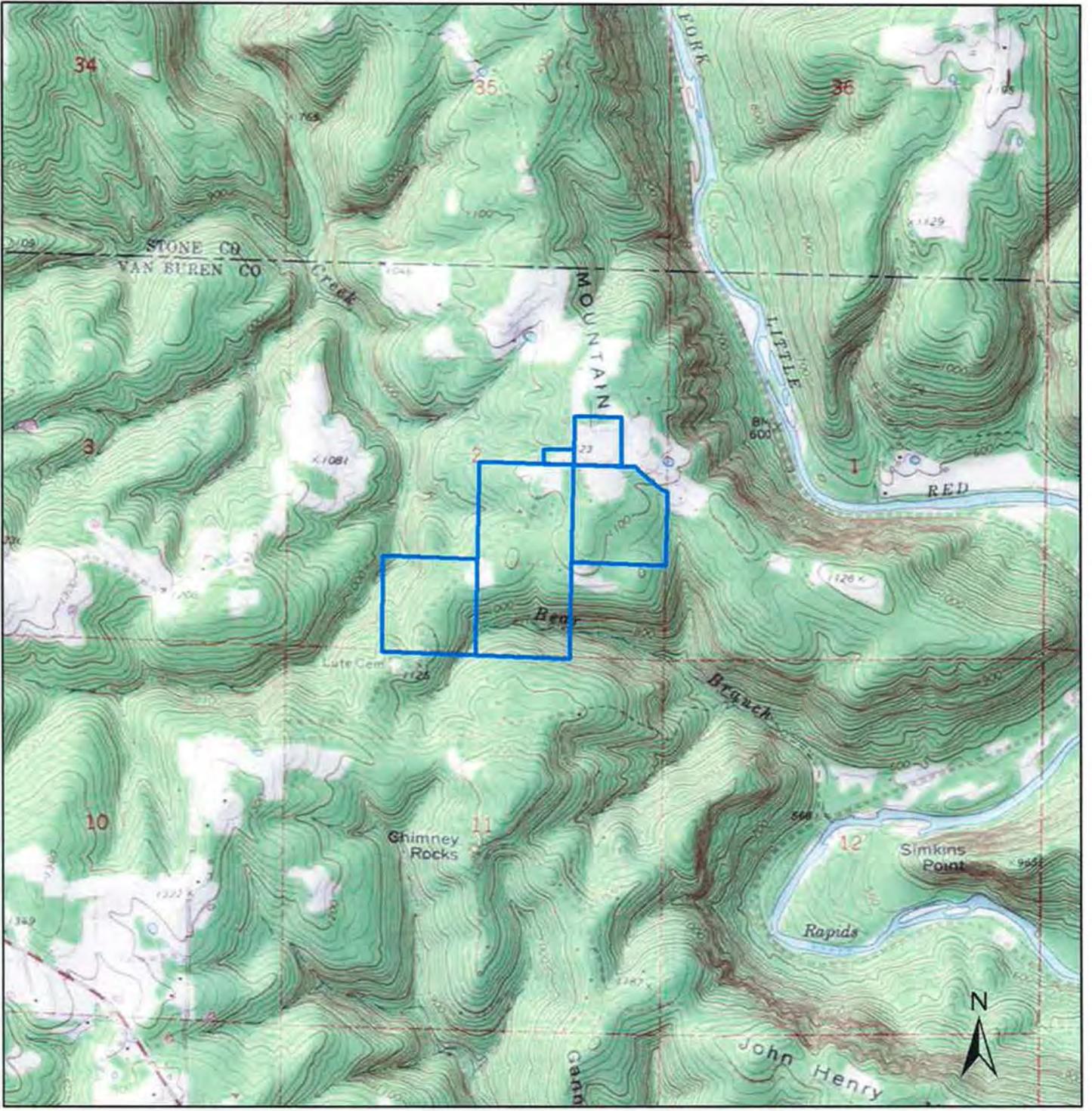
**Proposed Lease Area:**  
 Van Buren County, Arkansas, 5th Principal Meridian  
 T. 10N., R. 15W., Sec. 6, E2NE, NWNE, SWNE, SENW, NWSE, NESW  
 Approximately 258.04 acres.

**U.S. Department of the Interior**  
**Bureau of Land Management**  
 Eastern States, Jackson Field Office  
 Jackson, Mississippi

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Proposed Federal Oil and Gas Lease  
EOI 741



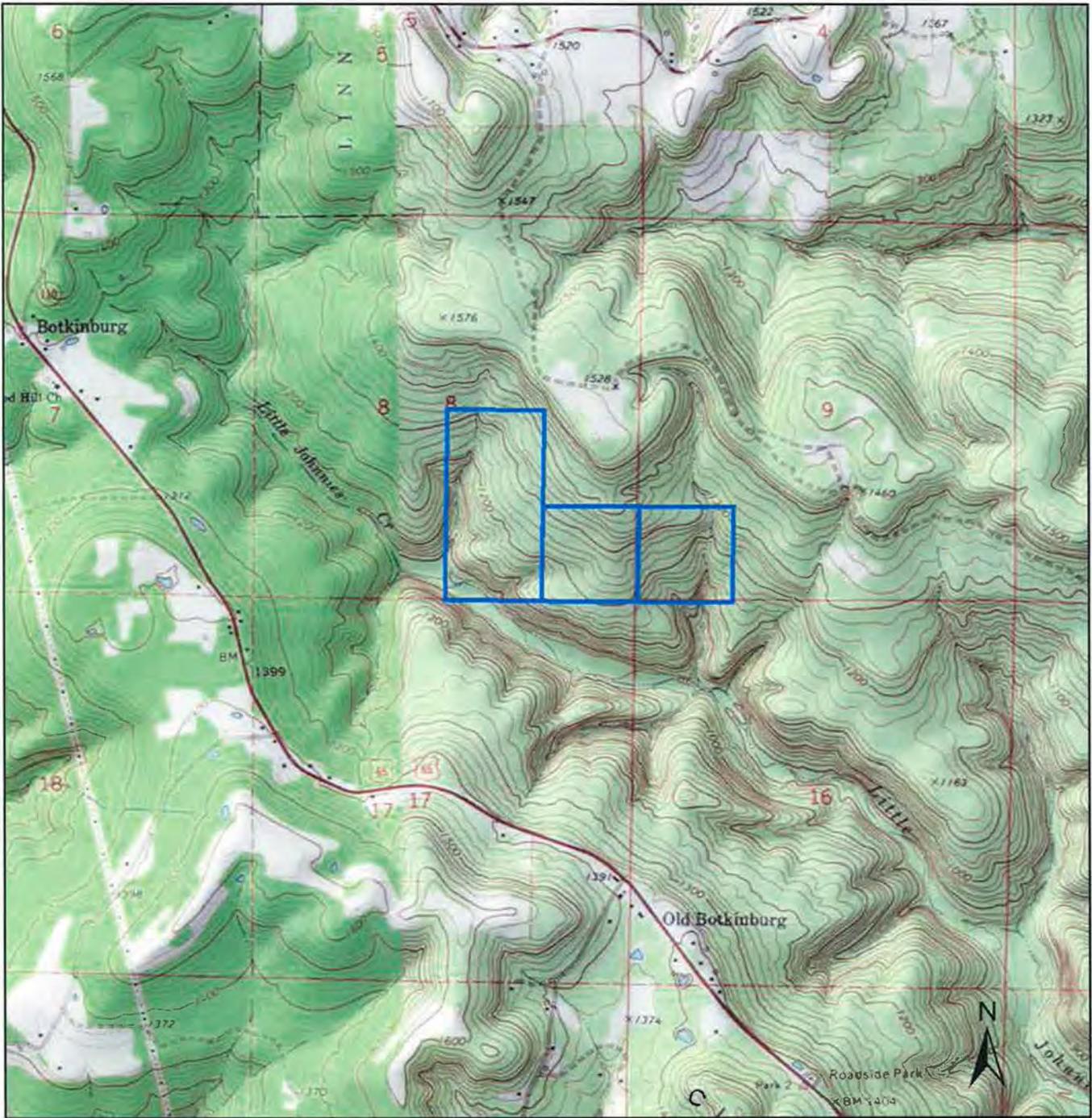
 Proposed Lease Area

Proposed Lease Area:  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 12N., R. 13W., Sec.2, SWSENE, Pt SESWNE,  
NESE less 2 ac. M&B, W2SE, SESW  
Approximately 170 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi

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Proposed Federal Oil and Gas Lease  
Part of EOI 742



2,000 1,000 0 2,000 4,000 6,000 Feet

 Proposed Lease Area

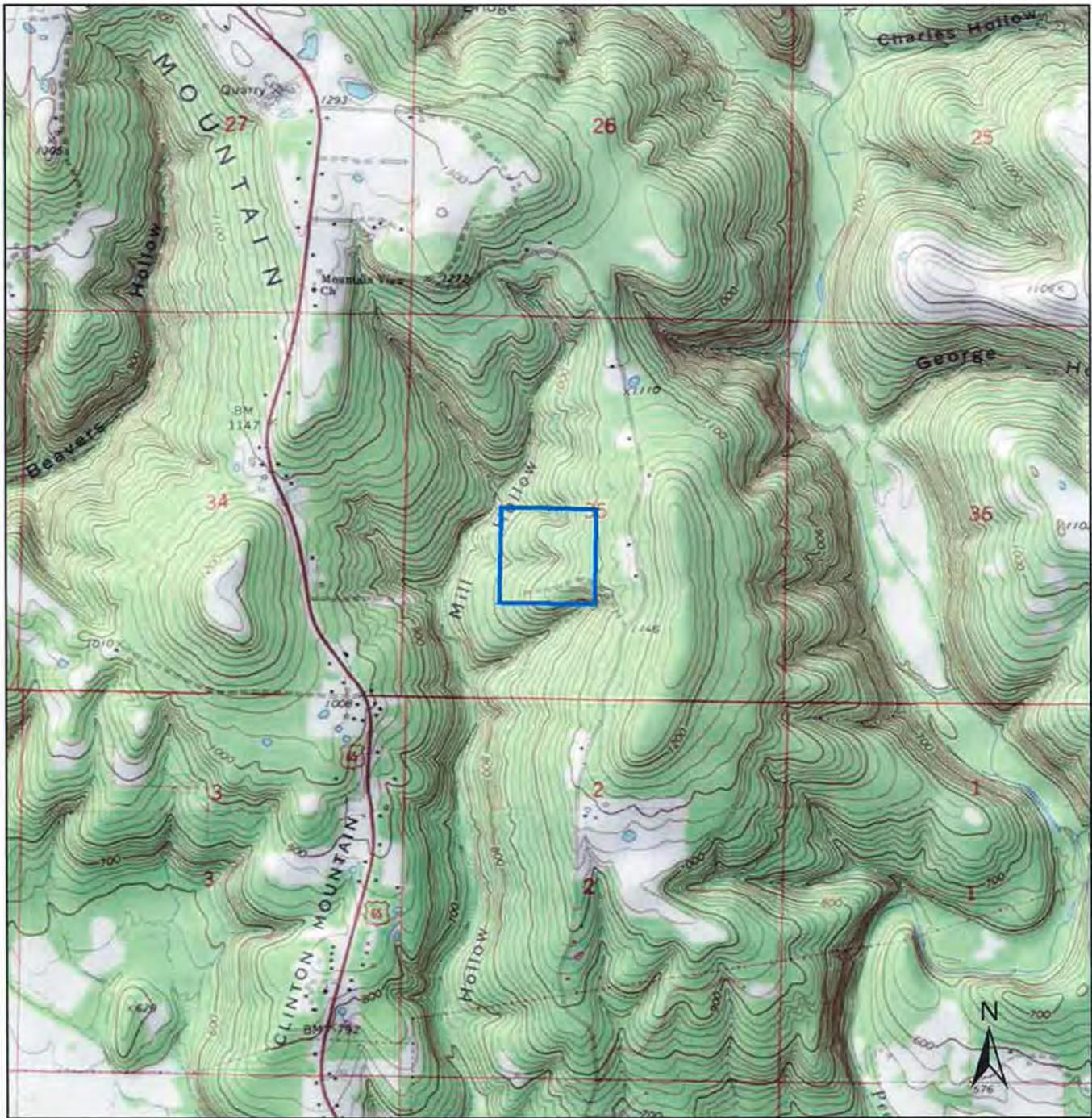
The proposed lease area shown on this map and described below is only part of the property contained in this EOI:  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 12N., R. 14W., Sec. 8, SESE, W2SE  
Sec. 9, SWSW  
Approximately 160 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi

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Proposed Federal Oil and Gas Lease  
Part of EOI 742



 Proposed Lease Area

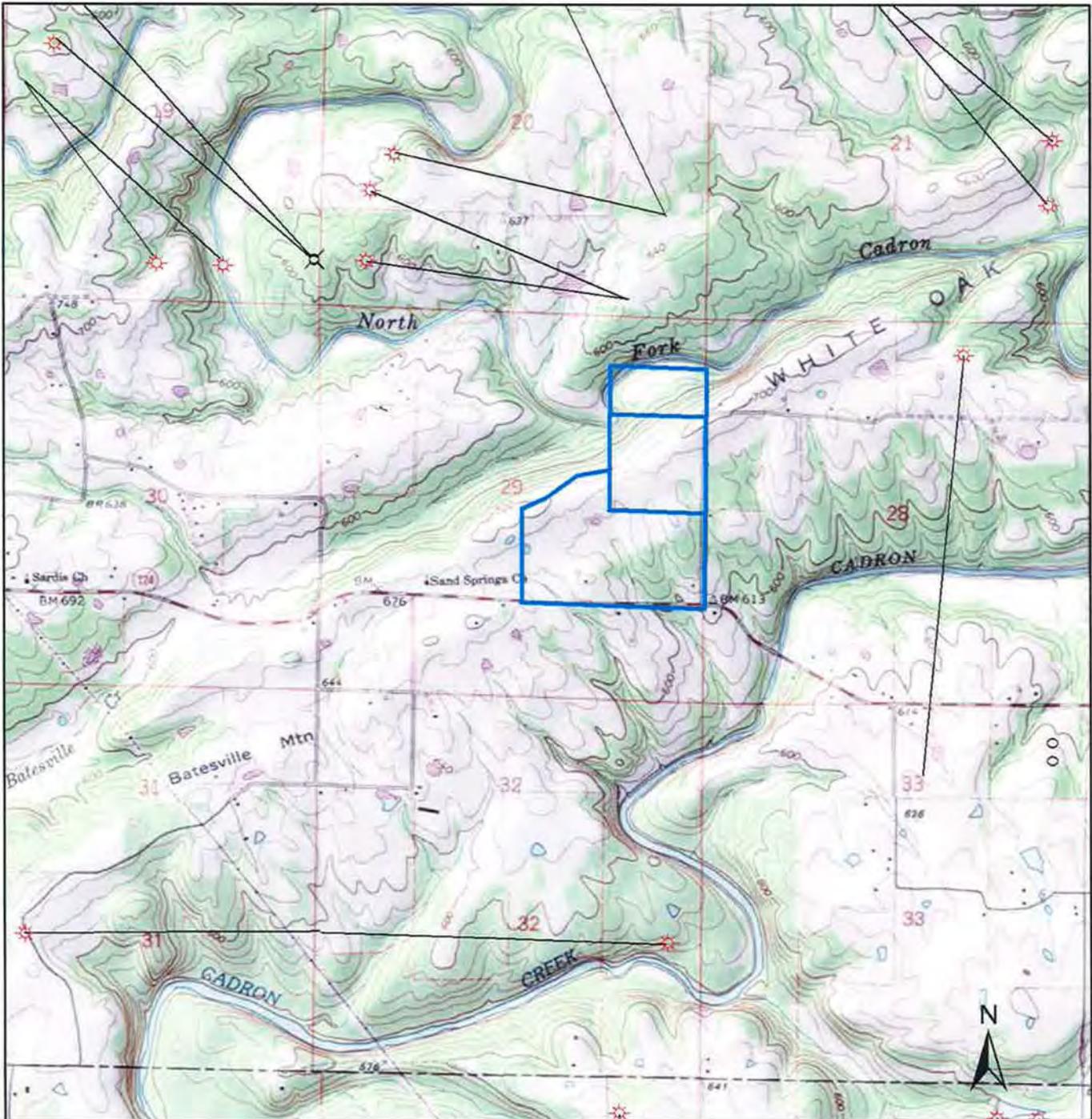
The proposed lease area shown on this map and described below is only part of the property contained in this EOI:  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 12N., R. 14W., Sec.35, NESW  
Approximately 40 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi

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Proposed Federal Oil and Gas Lease  
EOI 771



2,000 1,000 0 2,000 4,000 6,000 Feet

Proposed Lease Area:  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 9N., R. 12W., Sec. 29, S2NENE, SENE, Part of SWNE,  
Part of N2SE  
Approximately 145 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi

Proposed Lease Area

**Oil and Gas Wells**

ABANDON LOCATION

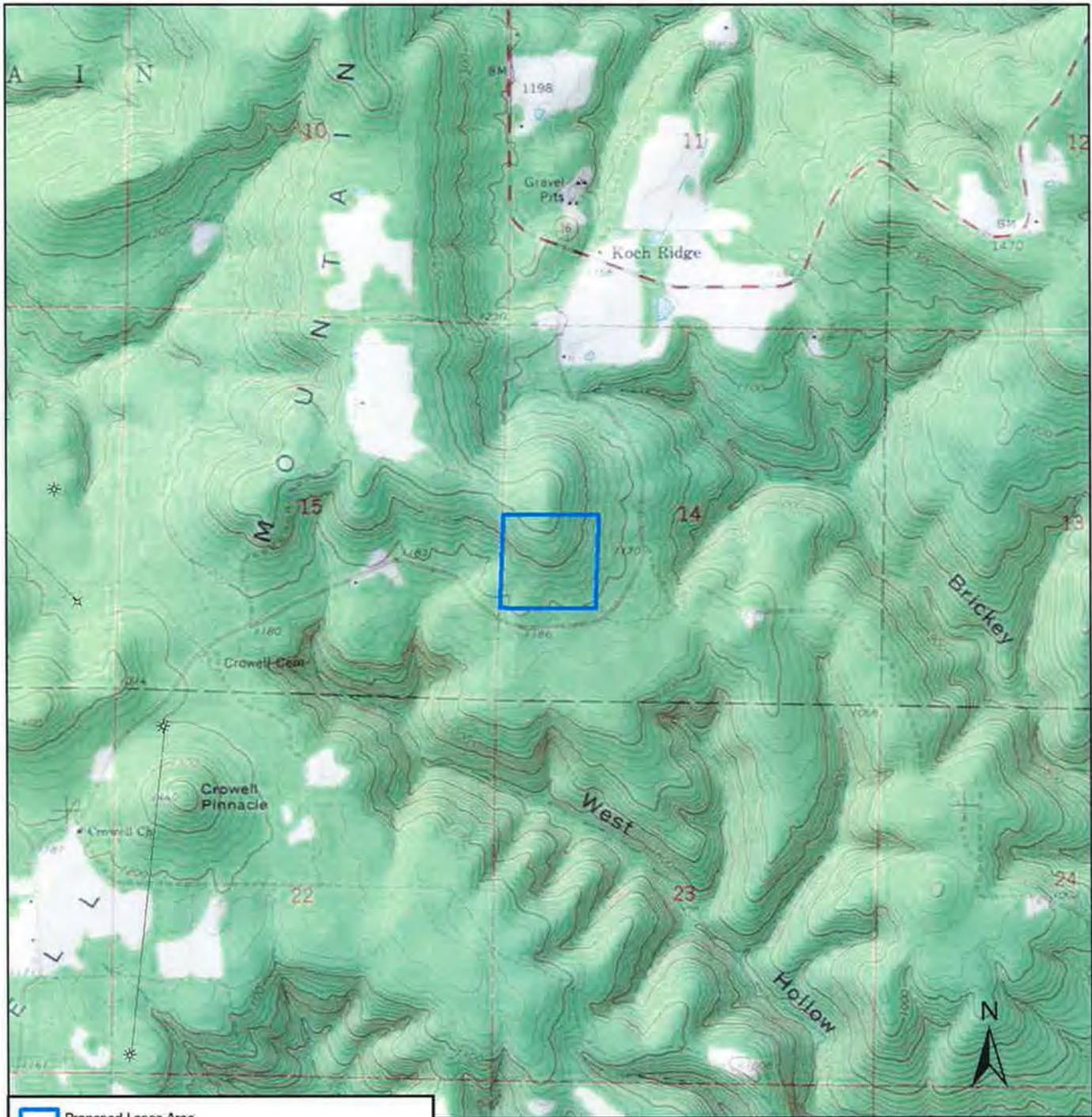
GAS PRODUCER

WELL START, LOCATION, OR FINAL STATUS UNKNOWN

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Proposed Federal Oil and Gas Lease  
1000



- Proposed Lease Area
- Oil and Gas Wells 4-16-10**
- Dry Hole, Temporarily Abandoned
- Gas Well
- Multiple Completion, Gas
- Junked and Abandoned Well
- Inj, Srv, CO2, Storage, WDW, Pseudo Orig, Mining Borhole
- Abandoned Location
- Location
- Well Start
- Well Bore

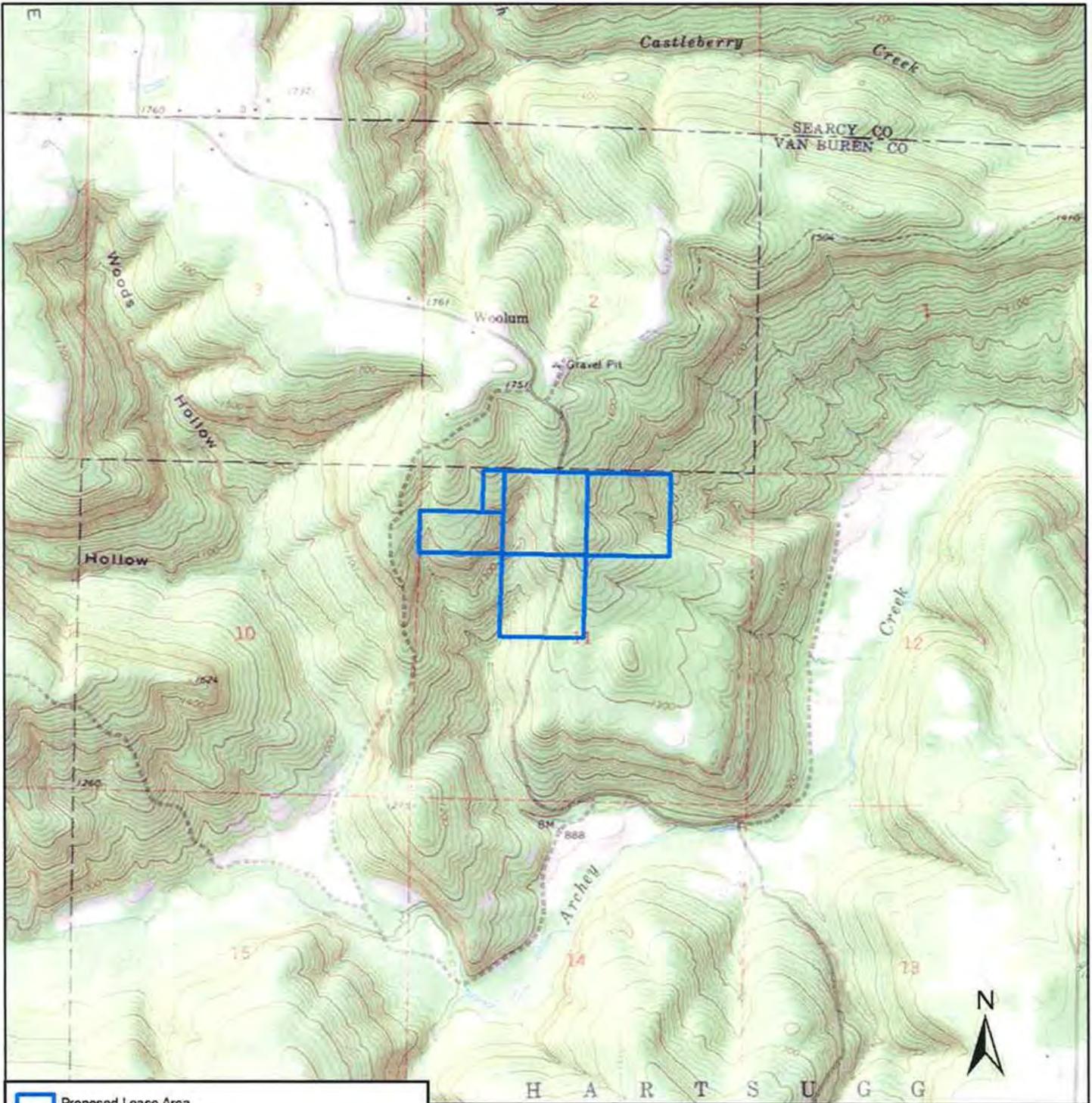


Proposed lease area :  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 11N., R. 15W., Sec.14, NWSW  
Approximately 40 acres.

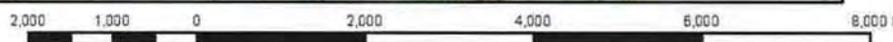
U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi

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Proposed Federal Oil and Gas Lease  
1003



- Proposed Lease Area
- Oil and Gas Wells 4-16-10**
- Dry Hole, Temporarily Abandoned
- ✱ Gas Well
- ✱ Multiple Completion, Gas
- ✱ Junked and Abandoned Well
- Inj, Srv, CO2, Storage, WDW, Pseudo Orig, Mining Borhole
- ✕ Abandoned Location
- Location
- Well Start
- Well Bore



Proposed lease area :  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 12N., R. 16W., Sec.11, NWNE, NENW, SENW,  
E1/2NENWNW, S1/2NWNW  
Approximately 145 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi

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**APPENDIX B**

**Proposed Lease Stipulations and Lease Notices**

## **Stipulations**

The following Stipulations apply to all EOIs:

### **Cultural Resources and Tribal Consultation**

**Stipulation:** This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. These obligations may include a requirement that you provide a cultural resources survey conducted by a professional archaeologist approved by the State Historic Preservation Office (SHPO). If currently unknown burial sites are discovered during development activities associated with this lease, these activities must cease immediately, applicable law on unknown burials will be followed and, if necessary, consultation with the appropriate tribe/group of federally recognized Native Americans will take place. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

### **Endangered Species**

**Stipulation:** 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.

**Exception:** None

**Modification:** None

**Waiver:** None

### **Sensitive Plant Species**

**Stipulation (CSU):** All suitable special status plant species habitat will be identified during environmental review of any proposed surface use activity. If field examination indicates that habitat of one or more of these species is present, the BLM will require a survey by a qualified

botanist for special status plants during periods appropriate to each species. Operations will not be allowed in areas where sensitive plants would be affected.

**Objective:** To protect threatened, endangered, candidate, proposed, and BLM sensitive plant species.

**Exception:** An exception may be granted if the operator agrees to implement measures developed in consultation with USFWS and in coordination with State agencies.

**Modification:** The stipulation may be modified if it is determined that a portion of the lease area does not contain sensitive plant species habitat.

**Waiver:** The stipulation may be waived if, based on field surveys, it is determined that the lease area does not contain sensitive plant species habitat.

### **Freshwater Aquatic Habitat**

Applies to EOI #598

**Stipulation (NSO):** No surface occupancy or disturbance, including discharges, are permitted within 250 feet of a river, stream, wetland spring, headwater, wet meadow, wet pine savanna, pond, tributary, lake, coastal slough, sand bar, vernal pools, calcareous seepage marsh, or small, marshy calcareous stream. If the slope exceeds 10 percent, the buffer may be extended to 600 feet to provide adequate protection for aquatic habitats and associated species.

**Objective:** To protect the water quality of watersheds and natural stream substrate and morphology and to avoid potential impacts to aquatic species and their habitat.

**Exception:** An exception may be granted if the operator agrees to 1) span creeks, rivers, wetlands, and floodplains by attaching pipelines to bridges; 2) directionally drill wells and pipelines from upland sites under creeks, rivers, other waters, and wetlands or 3) implement other measures developed in consultation with USFWS and in coordination with State agencies.

**Modification:** The buffer may be reduced if the adjacent waterway has been surveyed for 100 yards upstream and 300 yards downstream of the site, and the results document the lack of suitable/occupied/critical habitat for listed species which may be affected by the project, as determined by the BLM and USFWS.

**Waiver:** None

## **Lease Notices/Best Management Practices**

The following Lease Notices applies to all EOIs.

### **Disposal of Produced Water**

**Objective:** To protect aquatic habitats for and to avoid potential impacts to special status fish, mussels, turtles, snails, plants, and migratory birds.

The preferred method for disposal of produced water will be through reinjection to a permeable formation with total dissolved solids (TDS) content higher than 10,000 milligrams per liter (mg/L) where the aquifer is not hydrologically connected to caves, wetlands, or surface water. In Alabama, the injection of produced water is regulated by the Alabama State Oil and Gas Board. In Mississippi, the injection of produced water is regulated by the Mississippi Department of Environmental Quality (MDEQ) and the Mississippi Oil and Gas Board.

If reinjection is not practicable, closed-containment treatment systems should be used to contain and treat produced water for those contaminants and sediments exceeding State standards or EPA criteria. Salt content of any surface ponds for produced water, piggings pits, or other fluids must be less than 7,500 microsiemens per centimeter ( $\mu\text{S}/\text{cm}$ ). If surface pond salt content is greater than 7,500  $\mu\text{S}/\text{cm}$ , if other bird toxicity is present, or if the surface exhibits sheen, then the ponds must be netted or covered with floating balls, or other methods must be used to exclude migratory birds.

Produced waters may be released into an impounded reservoir if there is documentation that the discharge site and affected waters do not support special status species, are not designated critical habitat, and State and Federal water quality standards/criteria are met.

Produced waters may be released into a stream/river if the discharge site and affected waters have been recently surveyed and lack special status species, or if the applicant conducts approved surveys documenting the absence of special status species, State and Federal water quality standards/criteria are met, and a National Pollution Discharge Elimination System (NPDES) permit is obtained. The applicant should be aware that some species can be surveyed only during certain times of the year.

Produced waters may be released into a stream/river if the applicant can document that the produced waters would not adversely affect special status species. Water quality tests would be conducted on stream segment(s) or other locations proposed as discharge points, volumes to be released, and any settling ponds or other treatments proposed to improve wastewater quality. The water quality test data, any monitoring proposed, and other available information about general coalbed methane effluent characteristics (from published or unpublished literature) shall be reviewed by USFWS. Information about timing of the releases in relation to low water and other planned BMPs would also be required. Testing would include analysis of the discharge site and affected waters for chemical oxygen demand (COD), conductivity, total suspended solids (TSS), As, Hg, Se, and polycyclic aromatic hydrocarbons (PAH). Dissolved oxygen and ammonia standards/criteria must be met in bottom waters if they support listed benthic or epibenthic species. If a special status species has been documented to be more sensitive than State/Federal standards/criteria, site-specific standards for that species may be imposed. Calculations would be

based on State standards (or Federal CCC criteria for protection of freshwater aquatic life when the State has not determined a standard for these parameters).

### **Migratory Birds and Federally Listed Wildlife**

**Objective:** To protect perch and roosting sites and terrestrial habitats for and to avoid potential impacts to migratory birds and federally listed wildlife.

Any reserve pit that is not closed within 10 days after a well is completed and that contains water must be netted or covered with floating balls, or another method must be used to exclude migratory birds.

Maximum design speed on all operator-constructed and maintained (non-public) roads shall not exceed 25 miles per hour to minimize the chance of a collision with migratory birds or other listed wildlife species.

All powerlines must be built to protect raptors and other migratory birds, including bald eagles, from accidental electrocution, using methods detailed by the Avian Power Line Interaction Committee (APLIC 2006)

### **Perching and Nesting Birds and Bats**

**Objective:** To prevent birds and bats from entering or nesting in or on open vent stack equipment.

Open vent stack equipment, such as heater-treaters, separators, and dehydrator units, will be designed and constructed to prevent birds and bats from entering or nesting in or on such units and, to the extent practical, to discourage birds from perching on the stacks. Installing cone-shaped mesh covers on all open vents is one suggested method. Flat mesh covers are not expected to discourage perching and will not be acceptable.

### **Invasive and Non-Native Species**

**Objective:** To discourage the spread of invasive, non-native plants.

Use of native or non-invasive plants in seeding mixtures will be encouraged to stabilize disturbed areas and during restoration activities. Construction sites will be surveyed for invasive species prior to ground disturbance. If invasive species are found, the proper control measures will be used to either eradicate the species from the area or minimize its spread to other areas. If cogongrass is found on site, equipment will be washed before exiting the site to prevent the spread of this highly invasive species to other locations. Post-construction monitoring for cogongrass and other invasive plant species should be conducted to ensure early detection control. In the case of split-estate lands, final seed mixtures will be formulated in consultation with the private landowner.

## **Pesticide Application**

**Objective:** To protect the water quality of watersheds and natural stream substrate and morphology supporting special status species and their host species.

Any ground application of herbicides or other pesticides, sterilants, or adjuvants within 150 feet of listed species or habitat will require site-specific control measures developed in coordination or formal consultation with USFWS. No aerial application of herbicides or pesticides will be permitted.

## **APPENDIX C**

### **Correspondence**



United States Department of the Interior



Bureau of Land Management

Eastern States

Jackson Field Office

411 Briarwood Drive, Suite 404

Jackson, Mississippi 39206

<http://www.es.blm.gov>

IN REPLY REFER TO:  
8100 (020) JMS

March 25 2010

John Berrey, Chairman  
Quapaw Tribe of Oklahoma  
P.O. Box 765  
Quapaw, Oklahoma 74345

Dear Chairman Berrey:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 735) to lease federal minerals under privately owned surface. On this lease area, the BLM expects no more than two multi-well pads, 3 wells each, with approximately 11.18 acres of initial disturbance to be requested. However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. The legal locations of the approximately 258.04 acres of federal mineral tracts are as follows (maps enclosed):

Fifth Principal Meridian

Van Buren County (Scotland and Rex Quadrangles)

T. 10 N., R. 15 W., Sec. 6, E2NE, NWNE, SWNE, NWSE, NESW

(Approx. 258.04 ac.)

A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Office and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.

In addition, a stipulation will be included in the lease document which covers accidental discovery and requires additional consultation with both your office and the Arkansas Historic



Preservation Office. This stipulation will also be included in the permitting documents when, or if, a development proposal is submitted.

If you are aware of any sites within the proposed lease area which are currently being used for religious purposes or are recognized as sacred sites on these privately owned lands, please let us know so that additional consultation can be conducted and so that impacts will not occur. As provided by law, any specific location information will be held in confidence. Your information is requested within 30 days.

If you have any questions, concerns or comments about this undertaking, please contact John M. Sullivan, Archeologist at (601) 977-5439 or [John\\_M\\_Sullivan@BLM.Gov](mailto:John_M_Sullivan@BLM.Gov).

Sincerely,

(Acting for)  
Original Signed  
Grace Guess  
Bruce Dawson  
Field Manager

1 - Enclosure  
1 - Map

cc: Ms. Carrie V. Wilson, Quapaw Tribe of Oklahoma

Same letter sent as an original w/ a cc: to the attached list

bc:  
JFO CF & RF  
ES RF  
DWinters  
AMcMartney

ES020:JMSullivan:03/25/2010:601-977-5400:VanBuren.T10N.R15W.6.EOI 735 NA Ltr.doc



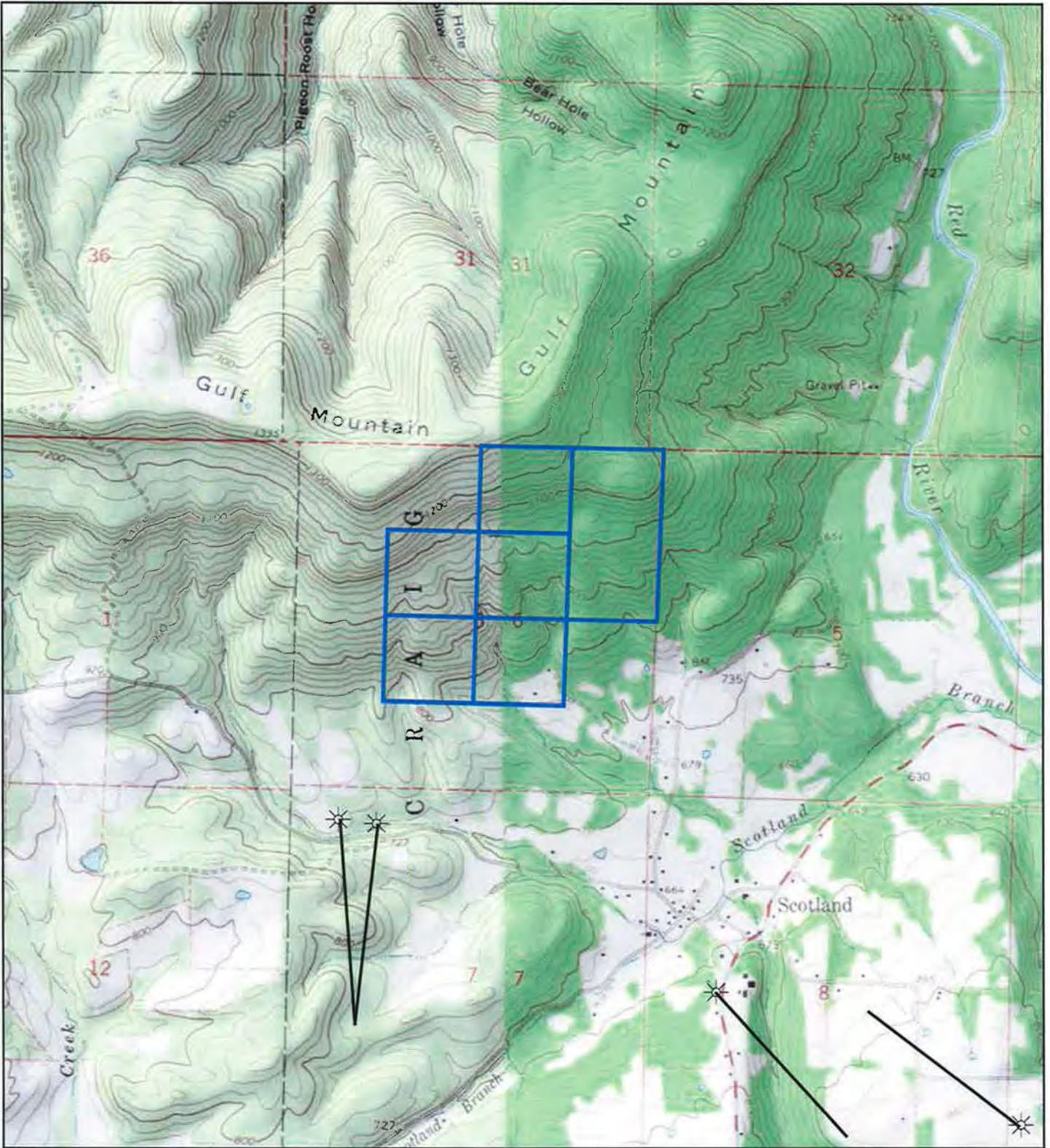
<b>Original letters to these</b>	<b>CC letters to these</b>
John Berrey, Chairman Quapaw Tribe of Oklahoma P.O. Box 765 Quapaw, Oklahoma 74345	Ms. Carrie V. Wilson Quapaw Tribe of Oklahoma c/o Arkansas Archeological Survey 2475 N. Hatch Ave. Fayetteville, AR 72704
Jim Gray, Principal Chief Osage Tribal Council P. O. Box 779 Pawhuska, Oklahoma 74056	Dr. Andrea Hunter Osage Nation Historic Preservation Office 627 Grandview Pawhuska, OK 74056
Leslie Standing, President Wichita and Affiliated Tribes Box 729 Anadarko, Oklahoma 73005	Wichita and Affiliated Tribes Attn: Cultural/Historic Preservation Office Box 729 Anadarko, OK 73005
Gregory Pyle, Chief Choctaw Nation of Oklahoma Drawer 1210 Durant, Oklahoma 74702-1210	Mr. Terry Cole Tribal Historic Preservation Officer Choctaw Nation of Oklahoma P.O. Drawer 1210 Durant, OK 74702
Honorable Bill Anoatubby Governor of the Chickasaw Nation P.O. Box 1548 Ada, Oklahoma 74821	Cultural Resources Chickasaw Nation P.O. Box 1548 Ada, OK 74821
Chadwick Smith, Principal Chief Cherokee Nation of Oklahoma P. O. Box 948 Tahlequah, Oklahoma 74465	Cherokee Nation Attn: Cultural Resources P.O. Box 948 Tahlequah, OK 74465
George Wickliffe, Chief United Keetoowah Band of Cherokee Indians in Oklahoma P. O. Box 746 Tahlequah, Oklahoma 74465	Ms. Lisa Stopp, Historic Preservation United Keetoowah Band of Cherokee Indians in Oklahoma P.O. Box 746 Tahlequah, OK 74465
Leonard M. Harjo, Principal Chief Seminole Nation of Oklahoma P.O. Box 1498 Wewoka, Oklahoma 74884	Seminole Nation Historic Preservation Office Attn: Mr. Pare Bowlegs P.O. Box 1768 Seminole, OK 74868-1768
A.D. Ellis, Principal Chief Muscogee (Creek) Nation of Oklahoma P.O. Box 580 Okmulgee, Oklahoma 74447	Mr. Tim Thompson, Cultural Advisor Muscogee (Creek) Nation of Oklahoma P.O. Box 580 Okmulgee, OK 74447



<b>Original letters to these</b>	<b>CC letters to these</b>
Vernon Yarholar, Town King Thlopthlocco Tribal Town P.O. Box 188 Okemah, Oklahoma 74859	NAGPRA/Cultural Heritage Thlopthlocco Tribal Town P.O. Box 188 Okemah, OK 74859
Brenda Shemayne Edwards, Chairperson Caddo Nation of Oklahoma P.O. Box 487 Binger, Oklahoma 73009	Mr. Robert Cast, Tribal Historic Preservation Officer Caddo Nation of Oklahoma P.O. Box 487 Binger, OK 73009
Earl Barbry, Sr., Chairman Tunica - Biloxi Tribe 151 Melacon Dr. Marksville, Louisiana 71351	Mr. Earl Barbry, Jr. Tribal Historic Preservation Officer Tunica - Biloxi Tribe 151 Melacon Dr. Marksville, LA 71351
Glenna J. Wallace, Chief Eastern Shawnee Tribe of Oklahoma P.O. Box 350 Seneca, MO 64865	Eastern Shawnee Tribe of Oklahoma Cultural Heritage Preservation/NAGPRA P.O. Box 350 Seneca, MO 64865
Kerry Holton, President Delaware Nation P.O. Box 825 Anadarko, Oklahoma 73005	Tamara Francis, Director Cultural Preservation Delaware Nation P.O. Box 825 Anadarko, OK 73005
Honorable George Blanchard, Governor of the Absentee-Shawnee Tribe 2025 S. Gordon Cooper Dr. Shawnee, Oklahoma 74801	Ms. Karen Kaniatobe Tribal Historic Preservation Officer Absentee-Shawnee Tribe 2025 S. Gordon Cooper Dr. Shawnee, OK 74801
Raymond Cline, Chairman Delaware Trust Board 170 N. Barbara Ave. Bartlesville, Oklahoma 74006-2745	Dr. Brice Obermeyer Cultural Heritage Preservation/NAGPRA Delaware Trust Board 170 N. Barbara Ave. Bartlesville, Oklahoma 74006-2745
Ron Sparkman, Chairman Shawnee Tribe P.O. Box 189 Miami, Oklahoma 74355	Director Historic Preservation Department Shawnee Tribe P.O. Box 189 Miami, OK 74355



Proposed Federal Oil and Gas Lease  
EOI 735



 Proposed Lease Area  
 Oil and Gas Wells  
 Gas  
 Well Bore

**Proposed Lease Area:**  
 Van Buren County, Arkansas, 5th Principal Meridian  
 T. 10N., R. 15W., Sec.6, E2NE,NWNE,SWNE,SENE,NWSE,NESW  
 Approximately 258.04 acres.

U.S. Department of the Interior  
 Bureau of Land Management  
 Eastern States, Jackson Field Office  
 Jackson, Mississippi



This map contains portions of the following USGS 1:24,000 Topographic Quadrangles: Scotland, Rex  
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No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or  
 completeness of this data for individual use or aggregate use with other data.



## United States Department of the Interior



### Bureau of Land Management

Eastern States  
Jackson Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>

**IN REPLY REFER TO:**  
8100 (020) JMS

March 25 2010

Ms. Cathie Mathews  
State Historic Preservation Officer  
1500 Tower Building  
323 Center Street  
Little Rock, Arkansas 72201

Dear Ms. Matthews:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 735) to lease federal minerals under privately owned surface. On this lease area, the BLM expects no more than two multi-well pads, 3 wells each, with approximately 11.18 acres of initial disturbance to be requested. However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. The legal locations of the approximately 258.04 acres of federal mineral tracts are as follows (map enclosed):

#### Fifth Principal Meridian

Van Buren County (Scotland and Rex Quadrangles)  
T. 10 N., R. 15 W., Sec. 6, E2NE, NWNE, SWNE, NWSE, NESW  
(Approx. 258.04 ac.)

A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Program and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.



In addition, if a development proposal (Notice of Staking (NOS) or Application for Permit to Drill (APD) is submitted, a stipulation will be included which covers accidental discovery and requires additional consultation with both your office and the appropriate federally recognized Native Americans.

Your concurrence of (1) a survey may be required when a NOS or APD is submitted, (2) additional consultation will be concluded before ground-disturbing activities begin, and (3) the addition of a stipulation covering accidental discovery when a NOS or APD is submitted, is requested within 30 days. If you have any questions or comments, please contact John M. Sullivan, Archeologist, at (601) 977-5439 or [John\\_M\\_Sullivan@BLM.Gov](mailto:John_M_Sullivan@BLM.Gov).

Sincerely,

**Original Signed  
Duane Winters**

Duane Winters  
Assistant Field Manager  
Natural Resources Program Specialist

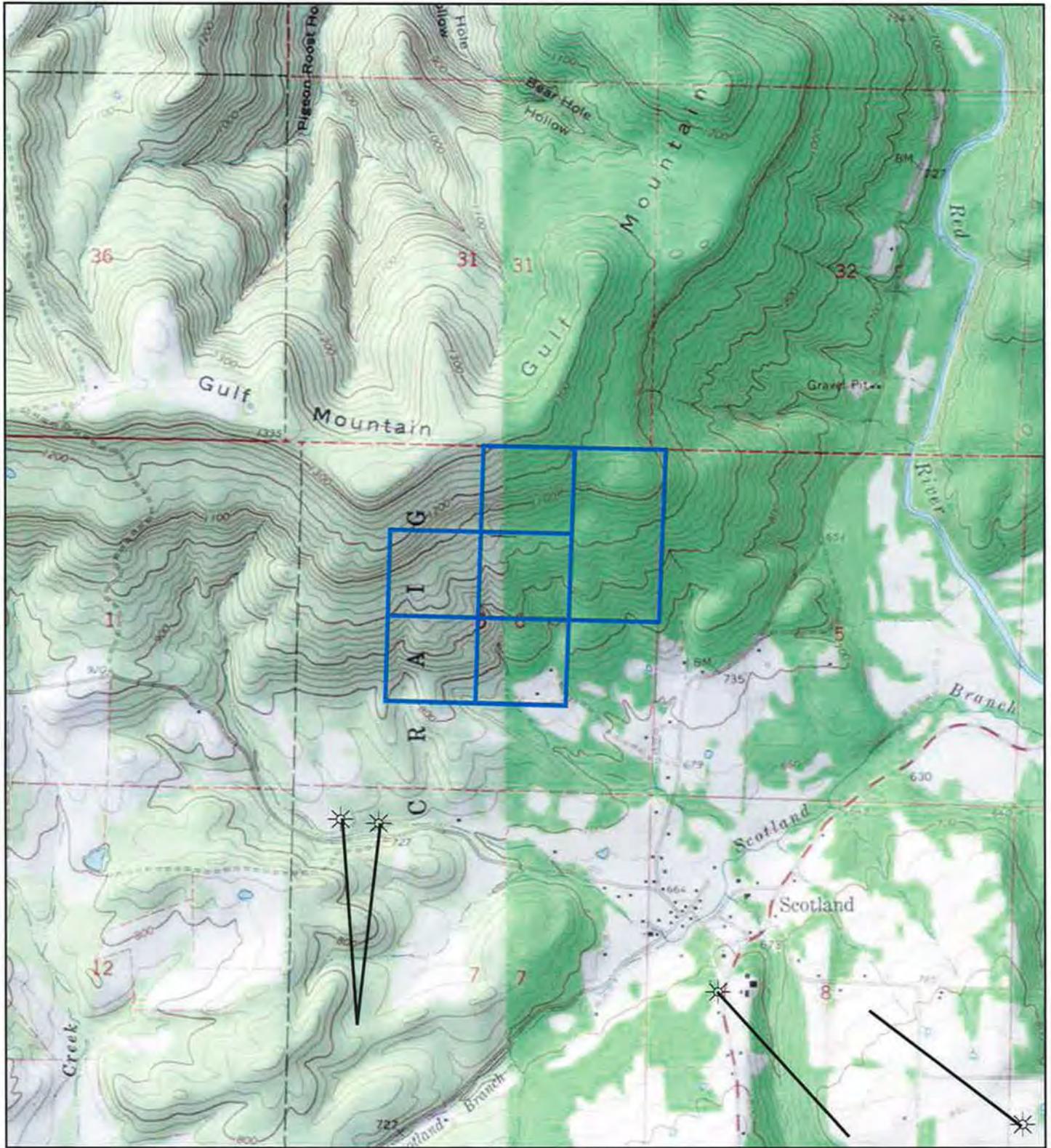
Enclosures  
1 Map

bc:  
JFO CF & RF  
ES RF  
DWinters  
~~AMcMartney~~

ES020:JMSullivan:03/23/2010:601-977-5400:VanBuren.T10N.R15W.6.EOI 735.SHPO Ltr.doc



**Proposed Federal Oil and Gas Lease  
EOI 735**



2,000 1,000 0 2,000 4,000 Feet

	Proposed Lease Area
	Oil and Gas Wells
	Gas
	Well Bore

Proposed Lease Area:  
 Van Buren County, Arkansas, 5th Principal Meridian  
 T. 10N., R. 15W., Sec.6, E2NE,NWNE,SWNE,SENE,NWSE,NESW  
 Approximately 258.04 acres.

U.S. Department of the Interior  
 Bureau of Land Management  
 Eastern States, Jackson Field Office  
 Jackson, Mississippi



This map contains portions of the following USGS 1:24,000 Topographic Quadrangles: Scotland, Rex  
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 completeness of this data for individual use or aggregate use with other data.



United States Department of the Interior

Bureau of Land Management

Southeastern States Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>

RECEIVED DEC 30 2010



IN REPLY REFER TO:  
8100 (020) JMS Van Buren Co. AR EOI 741

December 20, 2010

George Wickliffe, Chief  
United Keetoowah Band of Cherokee Indians in Oklahoma  
P. O. Box 746  
Tahlequah, Oklahoma 74465

The United States on behalf of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

*Lisa C. Stopp* 1/4/11  
Lisa C. Stopp, Tribal NAGPRA POC Date

Dear Chief Wickliffe:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 741) to lease federal minerals under privately owned surface, i.e. split-estate minerals. The Bureau's Reasonably Foreseeable Development Scenario for this proposed lease is five wells drilled from two multi-well pads to be constructed on private surface with no more than 10.62 acres total, access road and pads, to be disturbed accessing federal minerals. The legal locations of the approximately 40 acres of federal mineral tracts are as follows (map enclosed):

Fifth Principal Meridian

Van Buren County (Shirley Quadrangle)  
T. 12 N., R. 13 W., Sec. 2, SWSENE, Pt SESWNE, NESE LESS 2 ac. M&B,  
W2SE, SESW (Approx. 170 ac.)

However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Program and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.





## United States Department of the Interior



### Bureau of Land Management

Eastern States

Jackson Field Office

411 Briarwood Drive, Suite 404

Jackson, Mississippi 39206

<http://www.es.blm.gov>

**IN REPLY REFER TO:**

8100 (020) JMS

March 26 2010

John Berrey, Chairman  
Quapaw Tribe of Oklahoma  
P.O. Box 765  
Quapaw, Oklahoma 74345

Dear Chairman Berrey:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 742) to lease federal minerals under privately owned surface. On this lease area, the BLM expects no more than 4 wells drilled from 2 multi-well pads, with approximately 11.52 acres of initial disturbance to be requested. However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. The legal locations of the approximately 200 acres of federal mineral tracts are as follows (map enclosed):

**Fifth Principal Meridian**

Van Buren County (Botinburg and Old Lexington Quadrangles)

T. 12 N., R. 14 W., Sec. 8, SESE, W2SE

Sec. 13, SWSW (Approx. 160 ac.)

(Old Lexington and Clinton Quadrangles)

T. 12 N., R. 14 W., Sec. 35, NESW, (Approx. 40 ac.)

A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Office and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.



In addition, a stipulation will be included in the lease document which covers accidental discovery and requires additional consultation with both your office and the Arkansas Historic Preservation Office. This stipulation will also be included in the permitting documents when, or if, a development proposal is submitted.

If you are aware of any sites within the proposed lease area which are currently being used for religious purposes or are recognized as sacred sites on these privately owned lands, please let us know so that additional consultation can be conducted and so that impacts will not occur. As provided by law, any specific location information will be held in confidence. Your information is requested within 30 days.

If you have any questions, concerns or comments about this undertaking, please contact John M. Sullivan, Archeologist at (601) 977-5439 or [John\\_M\\_Sullivan@BLM.Gov](mailto:John_M_Sullivan@BLM.Gov).

Sincerely,  
**Original Signed**  
**Grace Guess**

(Acting for) Bruce Dawson  
Field Manager

Enclosures  
2 - Maps

cc: Ms. Carrie V. Wilson, Quapaw Tribe of Oklahoma

Same letter sent as an original w/ a cc: to the attached list

bc:  
JFO CF & RF  
ES RF  
DWinters  
AMcMartney

ES020:JMSullivan:03/26/2010:601-977-5400:VanBuren.T12N.R14W.8.9.35.EOI 742.NA Ltr



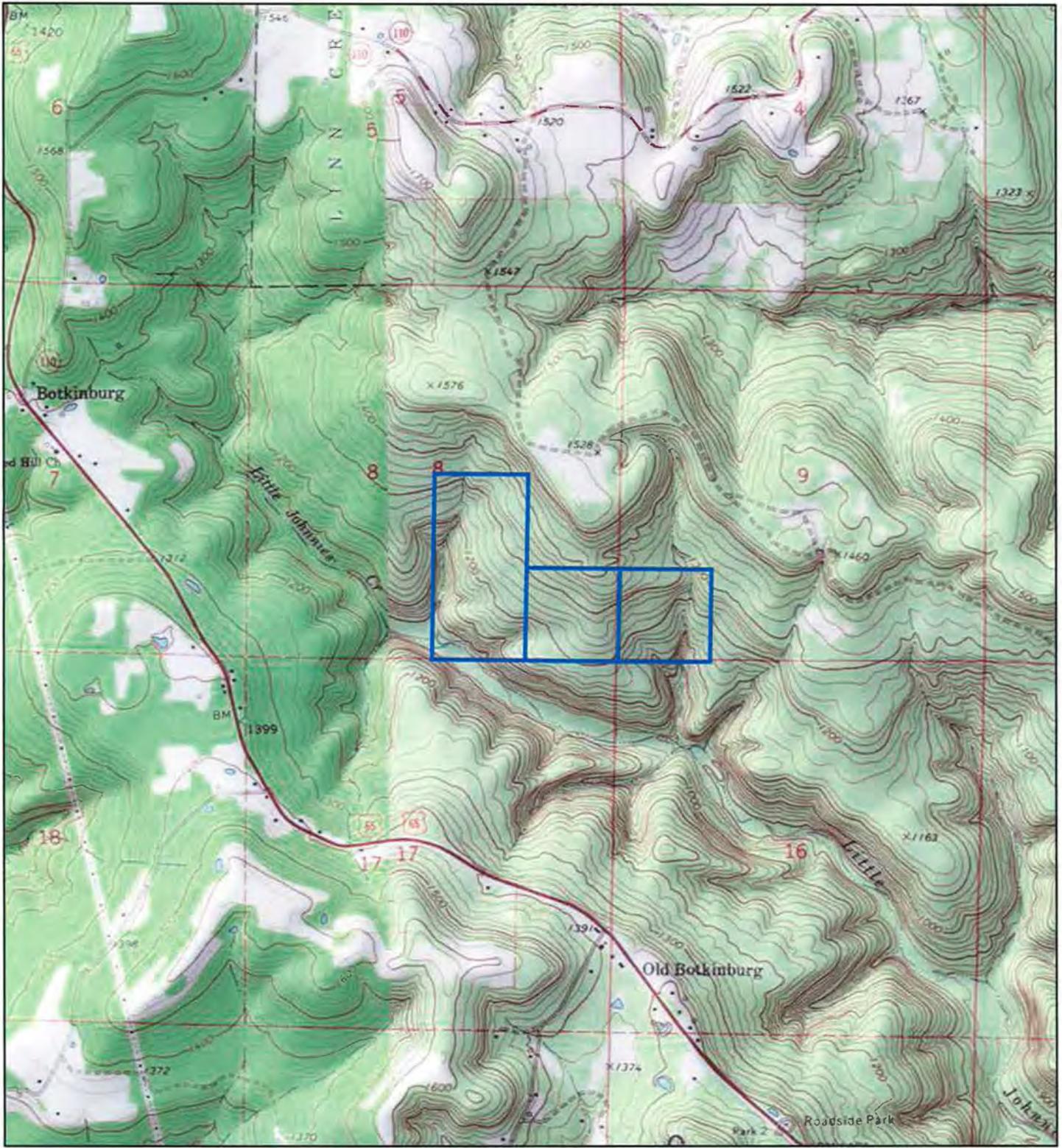
<b>Original letters to these</b>	<b>CC letters to these</b>
John Berrey, Chairman Quapaw Tribe of Oklahoma P.O. Box 765 Quapaw, Oklahoma 74345	Ms. Carrie V. Wilson Quapaw Tribe of Oklahoma c/o Arkansas Archeological Survey 2475 N. Hatch Ave. Fayetteville, AR 72704
Jim Gray, Principal Chief Osage Tribal Council P. O. Box 779 Pawhuska, Oklahoma 74056	Dr. Andrea Hunter Osage Nation Historic Preservation Office 627 Grandview Pawhuska, OK 74056
Leslie Standing, President Wichita and Affiliated Tribes Box 729 Anadarko, Oklahoma 73005	Wichita and Affiliated Tribes Attn: Cultural/Historic Preservation Office Box 729 Anadarko, OK 73005
Gregory Pyle, Chief Choctaw Nation of Oklahoma Drawer 1210 Durant, Oklahoma 74702-1210	Mr. Terry Cole Tribal Historic Preservation Officer Choctaw Nation of Oklahoma P.O. Drawer 1210 Durant, OK 74702
Honorable Bill Anoatubby Governor of the Chickasaw Nation P.O. Box 1548 Ada, Oklahoma 74821	Cultural Resources Chickasaw Nation P.O. Box 1548 Ada, OK 74821
Chadwick Smith, Principal Chief Cherokee Nation of Oklahoma P. O. Box 948 Tahlequah, Oklahoma 74465	Cherokee Nation Attn: Cultural Resources P.O. Box 948 Tahlequah, OK 74465
George Wickliffe, Chief United Keetoowah Band of Cherokee Indians in Oklahoma P. O. Box 746 Tahlequah, Oklahoma 74465	Ms. Lisa Stopp, Historic Preservation United Keetoowah Band of Cherokee Indians in Oklahoma P.O. Box 746 Tahlequah, OK 74465
Leonard M. Harjo, Principal Chief Seminole Nation of Oklahoma P.O. Box 1498 Wewoka, Oklahoma 74884	Seminole Nation Historic Preservation Office Attn: Mr. Pare Bowlegs P.O. Box 1768 Seminole, OK 74868-1768
A.D. Ellis, Principal Chief Muscogee (Creek) Nation of Oklahoma P.O. Box 580 Okmulgee, Oklahoma 74447	Mr. Tim Thompson, Cultural Advisor Muscogee (Creek) Nation of Oklahoma P.O. Box 580 Okmulgee, OK 74447



<b>Original letters to these</b>	<b>CC letters to these</b>
Vernon Yarholer, Town King Thlopthlocco Tribal Town P.O. Box 188 Okemah, Oklahoma 74859	NAGPRA/Cultural Heritage Thlopthlocco Tribal Town P.O. Box 188 Okemah, OK 74859
Brenda Shemayne Edwards, Chairperson Caddo Nation of Oklahoma P.O. Box 487 Binger, Oklahoma 73009	Mr. Robert Cast, Tribal Historic Preservation Officer Caddo Nation of Oklahoma P.O. Box 487 Binger, OK 73009
Earl Barbry, Sr., Chairman Tunica - Biloxi Tribe 151 Melacon Dr. Marksville, Louisiana 71351	Mr. Earl Barbry, Jr. Tribal Historic Preservation Officer Tunica - Biloxi Tribe 151 Melacon Dr. Marksville, LA 71351
Glenna J. Wallace, Chief Eastern Shawnee Tribe of Oklahoma P.O. Box 350 Seneca, MO 64865	Eastern Shawnee Tribe of Oklahoma Cultural Heritage Preservation/NAGPRA P.O. Box 350 Seneca, MO 64865
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Honorable George Blanchard, Governor of the Absentee-Shawnee Tribe 2025 S. Gordon Cooper Dr. Shawnee, Oklahoma 74801	Ms. Karen Kaniatobe Tribal Historic Preservation Officer Absentee-Shawnee Tribe 2025 S. Gordon Cooper Dr. Shawnee, OK 74801
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Ron Sparkman, Chairman Shawnee Tribe P.O. Box 189 Miami, Oklahoma 74355	Director Historic Preservation Department Shawnee Tribe P.O. Box 189 Miami, OK 74355



**Proposed Federal Oil and Gas Lease  
Part of EOI 742**



 Proposed Lease Area

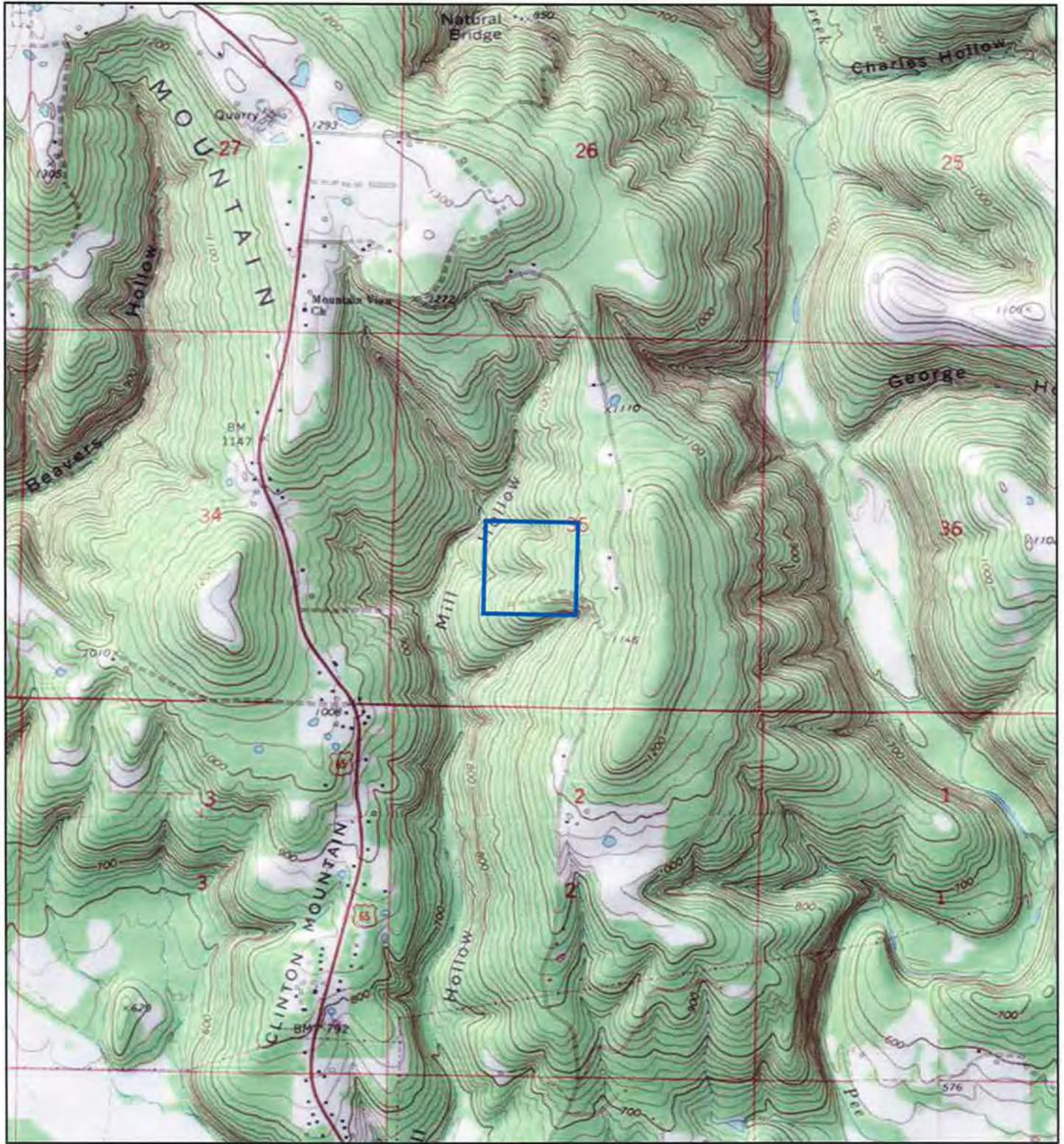
The proposed lease area shown on this map and described below is only part of the property contained in this EOI:  
 Van Buren County, Arkansas, 5th Principal Meridian  
 T. 12N., R. 14W., Sec.8, SESE, W2SE Sec. 9, SWSW  
 Approximately 160 acres.

**U.S. Department of the Interior  
 Bureau of Land Management  
 Eastern States, Jackson Field Office  
 Jackson, Mississippi**



This map contains portions of the following USGS 1:24,000 Topographic Quadrangles: Old Lexington, Botkinburg  
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 No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of this data for individual use or aggregate use with other data.

Proposed Federal Oil and Gas Lease  
Part of EOI 742



 Proposed Lease Area

The proposed lease area shown on this map and described below is only part of the property contained in this EOI:  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 12N., R. 14W., Sec.35, NESW  
Approximately 40 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi



This map contains portions of the following USGS 1:24,000 Topographic Quadrangles: Old Lexington, Clinton  
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United States Department of the Interior



Bureau of Land Management

Eastern States  
Jackson Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>

IN REPLY REFER TO:  
8100 (020) JMS

March 26 2010

Ms. Cathie Mathews  
State Historic Preservation Officer  
1500 Tower Building  
323 Center Street  
Little Rock, Arkansas 72201

Dear Ms. Matthews:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 742) to lease federal minerals under privately owned surface. On this lease area, the BLM expects no more than 4 wells drilled from 2 multi-well pads, with approximately 11.52 acres of initial disturbance to be requested. However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. The legal locations of the approximately 200 acres of federal mineral tracts are as follows (map enclosed):

Fifth Principal Meridian

Van Buren County (Botinburg and Old Lexington Quadrangles)  
T. 12 N., R. 14 W., Sec. 8, SESE, W2SE  
Sec. 13, SWSW (Approx. 160 ac.)

(Old Lexington and Clinton Quadrangles)  
T. 12 N., R. 14 W., Sec. 35, NESW, (Approx. 40 ac.)

A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Program and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.



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Sincerely,

**Original Signed  
Duane Winters**

Duane Winters  
Assistant Field Manager  
Natural Resources Program Specialist

Enclosures  
2 Maps

bc:

JFO CF & RF

ES RF

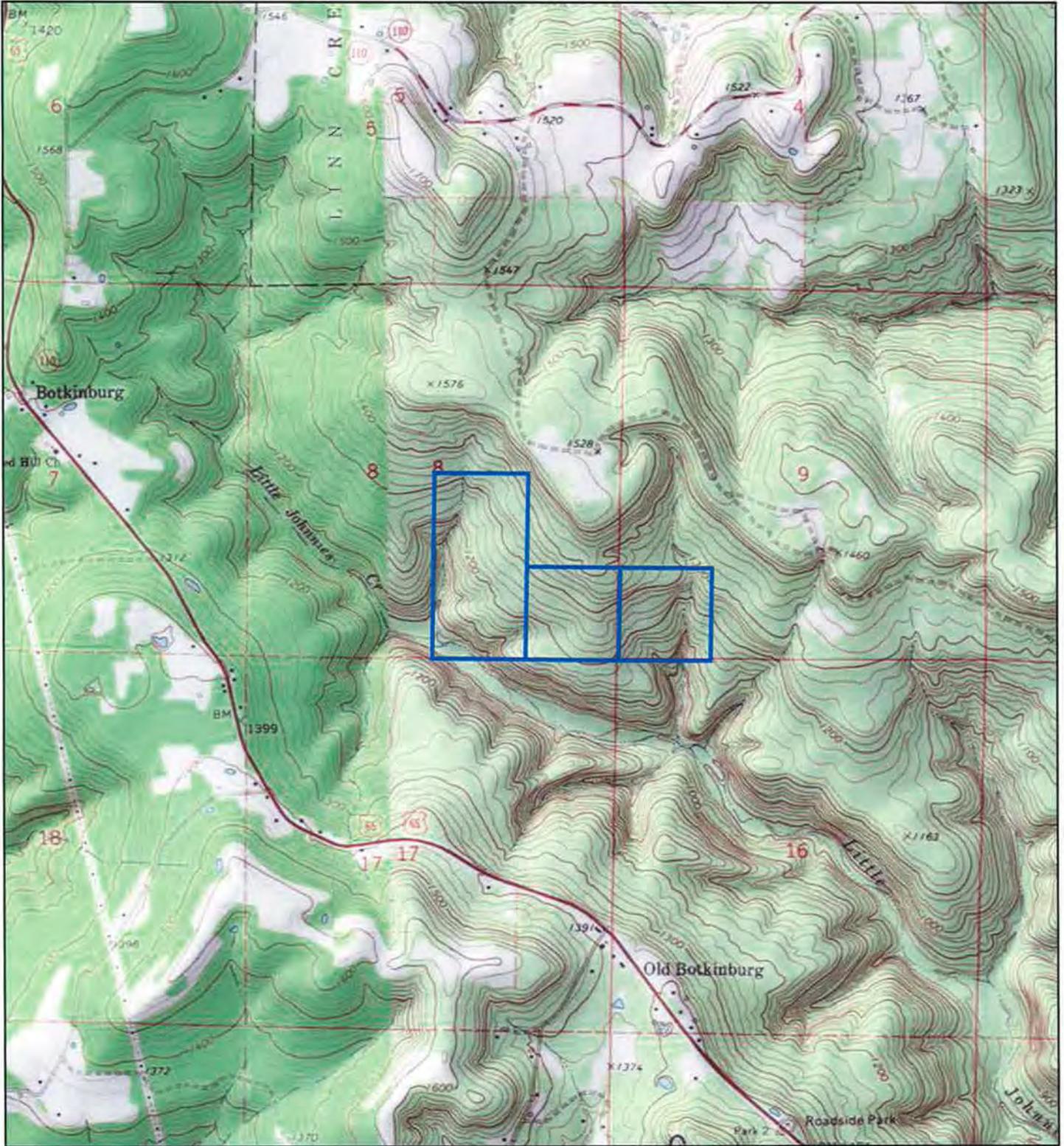
DWinters

AMcMartney

ES020:JMSullivan:03/26/2010:601-977-5400:VanBuren.T12N.R14W.8.9.35.EOI 742.SHPO Ltr



**Proposed Federal Oil and Gas Lease  
Part of EOI 742**



 Proposed Lease Area

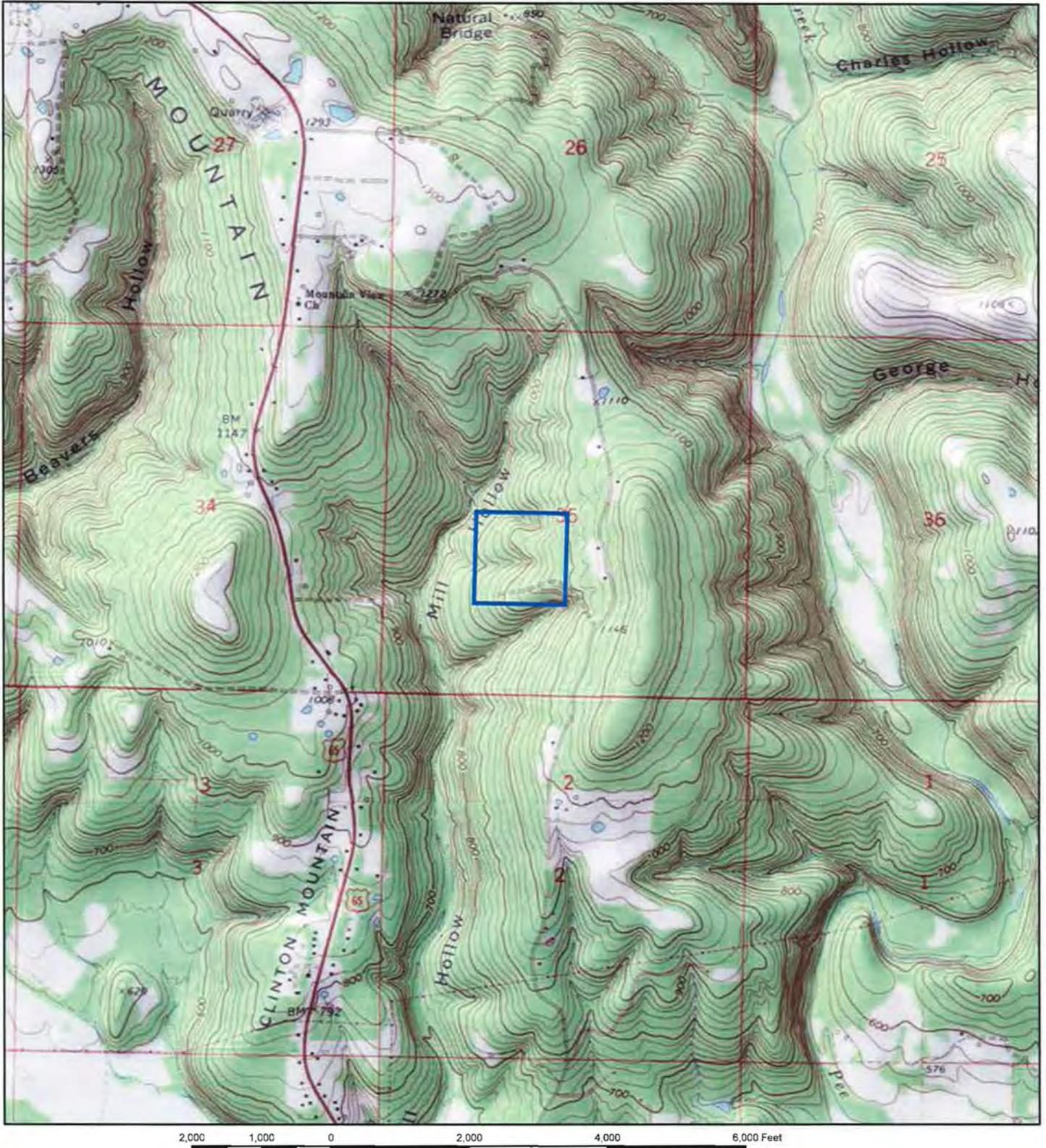
The proposed lease area shown on this map and described below is only part of the property contained in this EOI:  
 Van Buren County, Arkansas, 5th Principal Meridian  
 T. 12N., R. 14W., Sec.8, SESE, W2SE Sec. 9, SWSW  
 Approximately 160 acres.

U.S. Department of the Interior  
 Bureau of Land Management  
 Eastern States, Jackson Field Office  
 Jackson, Mississippi



This map contains portions of the following USGS 1:24,000 Topographic Quadrangles: Old Lexington, Botkinburg  
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Proposed Federal Oil and Gas Lease  
Part of EOI 742



 Proposed Lease Area

The proposed lease area shown on this map and described below is only part of the property contained in this EOI:  
Van Buren County, Arkansas, 5th Principal Meridian  
T. 12N., R. 14W., Sec.35, NESW  
Approximately 40 acres.

U.S. Department of the Interior  
Bureau of Land Management  
Eastern States, Jackson Field Office  
Jackson, Mississippi



This map contains portions of the following USGS 1:24,000 Topographic Quadrangles: Old Lexington, Clinton  
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United States Department of the Interior

Bureau of Land Management  
Southeastern States Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>



RECEIVED DEC 30 2010

IN REPLY REFER TO:  
8100 (020) JMS Van Buren Co. AR EOI 771

December 20, 2010

George Wickliffe, Chief  
United Keetoowah Band of Cherokee Indians in Oklahoma  
P. O. Box 746  
Tahlequah, Oklahoma 74465

The proposed development activity will disturb resources in Oklahoma and may impact the railroad project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

*Lisa C. Stopp* 1-4-11  
Lisa C. Stopp, Tribal NAGPRA POC Date

Dear Chief Wickliffe:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 771) to lease federal minerals under privately owned surface, i.e. split-estate minerals. The Bureau's Reasonably Foreseeable Development Scenario for this proposed lease is three wells drilled from one existing pad. No disturbance is expected. The legal locations of the approximately 40 acres of federal mineral tracts are as follows (map enclosed):

Fifth Principal Meridian  
Van Buren County (Morganton and Guy Quadrangles)  
T. 9 N., R. 12 W., Sec. 29, S2NENE, SENE, Part of SWNE, Part of N2SE  
(Approx. 145 ac.)

However, the proposed projection could change once it is leased and any specific locations proposed for development are determined by the developer and surface owners. A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Program and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.





United States Department of the Interior

Bureau of Land Management  
Southeastern States Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
<http://www.es.blm.gov>

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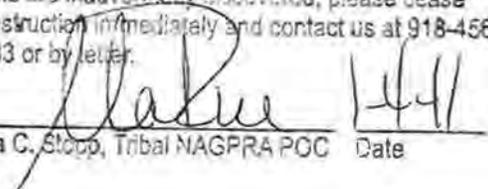
IN REPLY REFER TO:

8100 (020) JMS Van Buren Co. AR EOI 1000

December 21, 2010

George Wickliffe, Chief  
United Keetoowah Band of Cherokee Indians in Oklahoma  
P. O. Box 746  
Tahlequah, Oklahoma 74465

The United Keetoowah Band of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

  
Lisa C. Stopp, Tribal NAGPRA POC Date

Dear Chief Wickliffe:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 1000) to lease federal minerals under privately owned surface, i.e. split-estate minerals. The Bureau's Reasonably Foreseeable Development Scenario for this proposed lease is two wells drilled from one pad to be constructed on private surface with no more than 5.38 acres total, access road and pads, to be disturbed accessing federal minerals. The legal locations of the approximately 40 acres of federal mineral tracts are as follows (map enclosed):

Fifth Principal Meridian  
Van Buren County (Scotland Quadrangle)  
T. 11 N., R. 15 W., Sec. 14, NWSW, (Approx. 40 ac.)

However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Program and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.





United States Department of the Interior

Bureau of Land Management

Southeastern States Field Office  
411 Briarwood Drive, Suite 404  
Jackson, Mississippi 39206  
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JAN 11 2011

BUREAU OF LAND MANAGEMENT  
JACKSON FIELD OFFICE

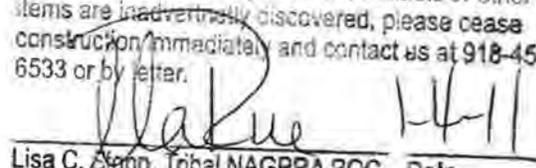
IN REPLY REFER TO:

8100 (020) JMS Van Buren Co. AR EOI 1003

December 21, 2010

George Wickliffe, Chief  
United Keetoowah Band of Cherokee Indians in Oklahoma  
P. O. Box 746  
Tahlequah, Oklahoma 74465

The United Keetoowah Band of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-458-6533 or by letter.

  
Lisa C. Stepp, Tribal NAGPRA POC Date

Dear Chief Wickliffe:

The Bureau of Land Management (BLM) has received an Expression of Interest (EOI 1003) to lease federal minerals under privately owned surface, i.e. split-estate minerals. The Bureau's Reasonably Foreseeable Development Scenario for this proposed lease is five wells drilled from two multi-well pads to be constructed on private surface with no more than 10.32 acres total, access road and pads, to be disturbed accessing federal minerals. The legal locations of the approximately 145 acres of federal mineral tracts are as follows (map enclosed):

Fifth Principal Meridian

Van Buren County (Scotland Quadrangle)  
T. 12 N., R. 16 W., Sec. 11, NWNE, NENW, SENW, E1/2NENWNW,  
S1/2NWNW, (Approx. 145 ac.)

However, proposed development locations have not been determined on a site-specific basis. Specific locations proposed for development are determined by the developer and surface owners. A section of the lease document will state that before the BLM approves any development proposal, a survey that meets current professional standards and a report that meets Arkansas Historic Preservation Program requirements may be required on a site-specific basis. A report of survey results must be approved by both the Arkansas Historic Preservation Program and the BLM before any ground disturbing activities take place. Any needed consultation will be concluded before ground-disturbing activities begin.



## **Appendix D**

### **Reasonably Foreseeable Development Scenario**

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 598

**Project Number:**

**Acres:** 8.18

**Location:** AR, Van Buren County, 5<sup>th</sup> Principal Meridian, T9N-R12W, Sec.9 Lot I

### **I. Reasonably Foreseeable Development**

#### **A. RFD Baseline Scenario Assumptions and Discussion**

Objective Horizon is Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 160 acres.

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### **B. Surface Disturbance Due to Oil and Gas Activity**

**Access Road:** 3.6 acres (5280'X30')

**Well Pad & Pit:** 4.9 acres (500'X425')

**Utility and/or Pipeline R.O.W:** 0 – Use access road ROW

**Initial Disturbance:** 8.5 acres

**Partial Reclamation of Drill Site:** 0.34 acres (100'X150')

**Net Disturbance for Productive Well:** 8.16 acres

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 735

**Project Number:** DOI-BLM-ES-0020-2010-0029-EA

**Acres:** 258.04

**Location:** AR, Van Buren County, Fifth Principal Meridian, T10N, R15W, Sec. 6, E2NE, NWNE, SWNE, SENW, NWSE, NESW

### **I. Reasonably Foreseeable Development**

#### **A. RFD Baseline Scenario Assumptions and Discussion**

Objective Horizon is the Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 640 acres. Project 3 wells drilled from 2 multi-well pads.

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### **B. Surface Disturbance Due to Oil and Gas Activity**

**Access Road:** 1.38 acres (2000'X30')

**Well Pad & Pit:** 9.8 acres (2X500'X425')

**Utility and/or Pipeline R.O.W:** 0 – Use access road ROW

**Initial Disturbance:** 11.18 acres

**Partial Reclamation of Drill Sites:** 0.68 acres (2X150'X100')

**Net Disturbance for Productive Wells:** 10.50 acres

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 741

**Project Number:** DOI-BLM-ES-0020-2010-0110-EA

**Acres:** 170

**Location:** AR, Van Buren County, Fifth Principal T12N, R13W, Sec. 2, SWSENE, Pt. SESWNE, NESE less 2 acres M&B, W2SE, SESW

### I. Reasonably Foreseeable Development

#### A. RFD Baseline Scenario Assumptions and Discussion

Objective horizon is Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 640 acres. Project 5 wells from 2 multi-well pads/

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### B. Surface Disturbance Due to Oil and Gas Activity

**Access Road:** 0.82 acres

**Well Pad & Pit:** 9.8 acres

**Utility and/or Pipeline R.O.W:** 0 – Use access road ROW

**Initial Disturbance:** 10.62 acres

**Partial Reclamation of Drill Site:** .68 acres

**Net Disturbance for Productive Well:** 9.94 acres

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 742

**Project Number:** DOI-BLM-ES-0020-2010-0023-EA

**Acres:** 200

**Location:** AR, Van Buren County, Fifth Principal T12N, R14W, Sec. 8, SESE, W2SE, Sec. 9, SWSW, Sec. 35, NESW

### I. Reasonably Foreseeable Development

#### A. RFD Baseline Scenario Assumptions and Discussion

Objective Horizon is the Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 640 acres. Project 4 wells drilled from 2 multi-well pads.

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### B. Surface Disturbance Due to Oil and Gas Activity

**Access Road:** 1.72 acres (2500'X30')

**Well Pad & Pit:** 9.8 acres (2X500'X425')

**Utility and/or Pipeline R.O.W:** 0 – Use access road ROW

**Initial Disturbance:** 11.52 acres

**Partial Reclamation of Drill Site:** 0.68 (2X150'X100')

**Net Disturbance for Productive Well:** 10.84 acres

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 771

**Project Number:** DOI-BLM-ES-0020-2010-0112-EA

**Acres:** 145

**Location:** AR, Van Buren County, Fifth Principal T9N, R12W, Sec. 29, S2NENE, SENE, N2SE

### I. Reasonably Foreseeable Development

#### A. RFD Baseline Scenario Assumptions and Discussion

Objective horizon is Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 640 acres. Project 3 wells drilled from pre-existing pad.

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### B. Surface Disturbance Due to Oil and Gas Activity

**Access Road:** 0 – pre-existing pad and road. No additional disturbance.

**Well Pad & Pit:** 0 – pre-existing pad and road. No additional disturbance.

**Utility and/or Pipeline R.O.W:** 0 – Use existing access road ROW

**Initial Disturbance:** 0 – pre-existing pad and road. No additional disturbance.

**Partial Reclamation of Drill Site:** 0 – pre-existing pad and road. No additional disturbance.

**Net Disturbance for Productive Well:** 0 – pre-existing pad and road. No additional disturbance.

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 1000

**Project Number:** DOI-BLM-ES-0020-2010-0061-EA

**Acres:** 40

**Location:** Van Buren County, AR, T11N, R15W, Sec. 14, NWSW

### **I. Reasonably Foreseeable Development**

#### **A. RFD Baseline Scenario Assumptions and Discussion**

Objective horizon is Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 640 acres. Project 2 wells drilled from 1 multi-well pad.

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### **B. Surface Disturbance Due to Oil and Gas Activity**

**Access Road:** 0.48 acres (700')

**Well Pad & Pit:** 4.9 acres

**Utility and/or Pipeline R.O.W:** 0 - Use access road ROW

**Initial Disturbance:** 5.38 acres

**Partial Reclamation of Drill Site:** 0.34 acres

**Net Disturbance for Productive Well:** 5.04 acres

## REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

**Case File Number:** EOI 1003

**Project Number:** DOI-BLM-ES-0020-2010-0064-EA

**Acres:** 145

**Location:** Van Buren County, AR, T12N, R16W, Sec. 11, NWNW, NENW, SENW, E2NENWNW, S2NWNW

### I. Reasonably Foreseeable Development

#### A. RFD Baseline Scenario Assumptions and Discussion

Objective horizon is Fayetteville Shale. Mineral commodity is natural gas.

Federal acreage will be incorporated into a state determined drilling unit. Drilling and production units are 640 acres. Project 5 wells drilled from 2 multi-well pads.

A 30' wide well access road will be constructed consisting of a 16' wide travel surface with a 7' buffer on each side.

If productive, multiple wells may be drilled from the existing pad.

If productive, oil and gas handling and production facilities will be constructed on the existing pad.

If productive, the reserve pit and part of the drill pad will be reclaimed when drilling and completion activities are concluded.

All disturbed acreage will be reclaimed if the well is non-productive.

#### B. Surface Disturbance Due to Oil and Gas Activity

**Access Road:** 0.52 acres (750')

**Well Pad & Pit:** 9.8 acres

**Utility and/or Pipeline R.O.W:** 0 - Use access road ROW

**Initial Disturbance:** 10.32 acres

**Partial Reclamation of Drill Site:** 0.68 acres

**Net Disturbance for Productive Well:** 9.64 acres

**APPENDIX E**

**Public Notice**