

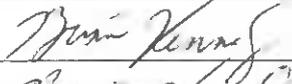
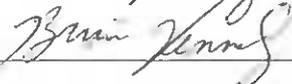
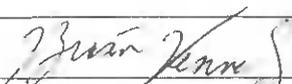
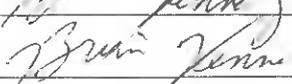
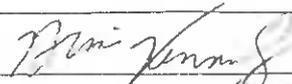
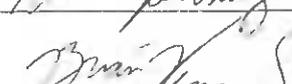
**BUREAU OF LAND MANAGEMENT
SOUTHEASTERN STATES FIELD OFFICE
411 Briarwood Drive, Suite 404
Jackson, Mississippi 39206**

ENVIRONMENTAL ASSESSMENT (EA) FORM

ES-020-2013-18

PROJECT NAME: Baker 10-14 #3-10H4, Baker 10-14 #4-10H3, and Baker 10-14 #5-10H3
APD EA

TECHNICAL REVIEW:

X	Program	Reviewer	Signature	Date
	Lands/Realty			
X	Environmental Justice	Brian Kennedy Physical Scientist		5/23/13
	Wild Horse & Burro			
	Communications (Dispatch)			
X	Cultural/Paleontology	John Sullivan Archeologist		5/23/13
X	Native American Religious Concerns	John Sullivan Archeologist		5/23/13
	Wilderness			
	Farmlands (Prime & Unique)			
X	Recreation	Brian Kennedy Physical Scientist		5/23/13
X	Visual Resources	Brian Kennedy Physical Scientist		5/23/13
	Operations			
	Fire Management			
	Range Management			
	Law Enforcement			
	Land Law Examiner			
X	Energy Policy	Brian Kennedy Physical Scientist		5/23/13
X	Minerals	Brian Kennedy Physical Scientist		5/23/13
	ACEC			
X	Surface Protection	Brian Kennedy Physical Scientist		5/23/13
X	Hazardous Material	Brian Kennedy Physical Scientist		5/23/13

X	Soils	Brian Kennedy Physical Scientist	<i>Brian Kennedy</i>	5/23/13
X	Air Quality	Brian Kennedy Physical Scientist	<i>Brian Kennedy</i>	5/23/13
X	Water Quality (Surface & Ground)	Brian Kennedy Physical Scientist	<i>Brian Kennedy</i>	5/23/13
	Water Rights			
X	Floodplain	Brian Kennedy Physical Scientist	<i>Brian Kennedy</i>	5/23/13
X	Wetlands/Riparian Zones	Brian Kennedy Physical Scientist	<i>Brian Kennedy</i>	5/23/13
	Wild & Scenic Rivers			
X	Invasive & Non-Native Spp.	Alison McCartney Natural Resource Specialist	<i>Alison McCartney</i>	5/23/13
X	Wildlife/Botanical Spp.	Alison McCartney Natural Resource Specialist	<i>Alison McCartney</i>	5/23/13
X	T&E Wildlife/Botanical Spp.	Faye Winters Wildlife Biologist	<i>Faye Winters</i>	6/6/13

Prepared by: *Brian Kennedy*
 Brian Kennedy
 Physical Scientist

Date: 5/23/13

Reviewed by: *Gary Taylor*
 Gary Taylor
 NEPA Coordinator

Date: 6/6/13

Reviewed by: *Duane Winters*
 Duane Winters
 Resource Supervisor

Date: 6/6/13

Reviewed by: *Randall Mills*
 Randall Mills
 Minerals Supervisor

Date: 6/6/2013



**United States Department of the Interior
Bureau of Land Management**

Eastern States

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

**Environmental Assessment
EA-020-2013-18**

**Baker 10-14 #3-10H4, Baker 10-14 #4-10H3,
& Baker 10-14 #5-10H3 APD EA**

**Prepared by: Brian Kennedy, Physical Scientist
Date: May 22, 2013**

CH 1 – PURPOSE OF AND NEED FOR THE PROPOSED ACTION

Introduction

On January 08, 2013, SEECO, Inc. submitted two Applications for Permit to Drill (APD) for the proposed: Baker 10-14 #3-10H4, Baker 10-14 #4-10H3, and Baker 10-14 #5-10H3 natural gas wells to the Bureau of Land Management (BLM), Southeastern States Field Office (SSFO). All wells are on the same well pad. The well locations are approximately 2 miles southwest of the community named Choctaw, Arkansas and located 1/3 of a mile north off of Hollow Hill Road. The three APDs were submitted in accordance with Onshore Oil and Gas Order No. 1 (43 CFR 3164), administered by the BLM. The well site for the APDs is located on private property. The wells, if approved, will drill into federally owned and leased oil and gas mineral rights. The leasing and 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), and The Mineral Leasing Act for Acquired Lands, as amended (30 U.S.C. 351-359).

Need for the Proposed Action

An APD is a proposed action under BLM jurisdiction requiring federal approval for a permit to drill and as such must be reviewed for compliance with various statutes, laws and regulations including the National Environmental Policy Act of 1969 (NEPA).

A federal oil and gas lease is a legal contract that grants exclusive rights to the lessee to drill for and remove all oil and gas from the lease with the right to build and maintain necessary improvements. The subject lease was issued by the BLM following a decision by the Authorized Officer to allow leasing of the oil and gas rights on the property. The leasing decision and leasing action represent a commitment to allow exploration and development of potential oil and gas resources on the property. Hence, the drilling activity on the lease constitutes a valid lease right and is needed in order to fulfill the purpose and intent of the lease.

SEECO, Inc. submitted three APDs in accordance to Onshore Order #1 as directed by BLM for the development of oil and gas resources under BLM jurisdiction. BLM's responsibility is to review such applications in accordance with federal and state laws, policies, and regulations so that oil and gas resources can be developed in a way that is beneficial to the American public as well as ensure the U.S. Government's interests are not being drained and/or trespassed on oil and gas activity.

Management Objectives of the Action

The desired outcome of the proposed action is the approval of SEECO, Inc.'s three APDs for the extraction of natural gas submitted to BLM. Approval of the APDs from SEECO, Inc. would allow the continued extraction and production of federally owned natural gas. Not approving these natural gas wells would stop the development of federal minerals in this area and create a loss of royalties to the federal government.

Land Use Plan Conformance

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 can be used as a basis for making a decision on the proposal. An environmental assessment was prepared prior to lease and used as the basis for the leasing decisions for the two leases related to the proposed APDs. Based on the leasing decisions for these leases (ARES-56359 and ARES-56360), the lease areas are subject to stipulations for Cultural Resources and Tribal Consultation, Endangered Species, Sensitive Plants, and a No Surface Occupancy (NSO) stipulation for Freshwater Aquatic Habitat.

Applicable Regulatory Requirements and Required Coordination

Applicable Regulatory Requirements and Required Coordination include: 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), Leasing Reform Act of 1987, 43 CFR 3162.3, 43 CFR 3162.5, Onshore Oil & Gas Order No. 1, Energy Policy Act of 2005, National Environmental Policy Act, 1969 (NEPA), Arkansas Department of Environmental Quality (AR DEQ), 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 for cultural compliance under Section 106:

- Quapaw Tribe of Oklahoma
- Osage Nation
- Choctaw Nation of Oklahoma
- Chickasaw Nation
- Cherokee Nation of Oklahoma
- United Keetoowah Band of Cherokee Indians in Oklahoma
- Seminole Nation of Oklahoma
- Muscogee (Creek) Nation of Oklahoma
- Thlopthlocco Tribal Town
- Caddo Indian Tribe of Oklahoma
- Tunica-Biloxi Tribe of Louisiana
- Alabama-Quassarte Tribal Town
- Arkansas Historic Preservation Program (AHPP), State Historic Preservation Officer

Consultation completed by BLM staff:

- Arkansas Historic Preservation Program (AHPP), State Historic Preservation Officer
- U.S. Fish and Wildlife Service, Ecological Services, Conway County, Arkansas
- Arkansas Natural Heritage Commission

The following BLM employees attended an onsite visit in January 11, 2013:

- (1) John Sullivan, SSFO Archeologist

(2) Brian Kennedy, SSFO Physical Scientist

Decision(s) That Must Be Made

The Bureau of Land Management (BLM) has two decisions under consideration for the proposed action of approving the three APDs submitted by SEECO, Inc. The "Proposed Action" and the "No Action" options are considered the only two reasonable alternatives under decision by BLM. No issues were raised during the scoping process and/or onsite inspection that would suggest or identify other alternatives for consideration. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

First and preferred decision for consideration is the approval of the three APDs which are co-located on one well pad location in Van Buren County, Arkansas submitted by SEECO, Inc. The preferred decision would allow the drilling of three natural gas wells to protect federal mineral interests from being drained from nearby oil and gas production. The decision to approve drilling, management would also be granting an exception to the lease stipulations of ARES-56359 and ARES-56360 for freshwater aquatic habitat. Approving the APDs would give SEECO, Inc. the permission to begin developing the federal minerals of ARES-56359 and ARES-56360 in return the U.S. Government would be paid royalties for those minerals developed. The no action or second decision to consider would be to disapprove the APDs submitted by SEECO, Inc. If the second decision was proven to be the appropriate and best course of action by BLM, the proposed well site for the APDs submitted would not be recommended by BLM to SEECO, Inc. for development or any future submittal of APDs for that location. Royalties would not be collected and drainage of federal minerals would continue take place from the neighboring private leases. This EA will discuss and review all SSFO NEPA elements taken under consideration to provide management with the best decision appropriate for all proposed actions. 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 as other subsequent laws and policies passed by the U.S. Congress.

CH 2 – ALTERNATIVES INCLUDING THE PROPOSED ACTION

Introduction

BLM will review the APDs submitted by SEECO, Inc. for the Baker 10-14 #3-10H4, Baker 10-14 #4-10H3, and Baker 10-14 #5-10H3 wells. The APDs are proposed natural gas wells. The well site where the APDs are located is on private property in Van Buren County, Arkansas approximately 2 miles southwest of Choctaw, Arkansas.

APD Location

Baker 10-14 #3-10H4 - 559' FSL and 845' FWL in Section 10, T. 10 N., R. 14 W.; 5th Principal Meridian, Van Buren County, Arkansas

Baker 10-14 #4-10H3 - 576' FSL and 835' FWL in Section 10, T. 10 N., R. 14 W.; 5th Principal Meridian, Van Buren County, Arkansas

Baker 10-14 #5-10H3 - 542' FSL and 855' FWL in Section 10, T. 10 N., R. 14 W.; 5th Principal Meridian, Van Buren County, Arkansas

Proposed Action (Preferred Option)

The proposed action is to approve the well pad location for all three APDs submitted by SEECO, Inc. with approximately 8.5 acres of total surface disturbance for construction of a well pad, reserve pit, and access road plus clearing limits. The proposed action also includes granting an exception to the NSO stipulation for Freshwater Aquatic Habitat to allow construction within 250 feet of a pond and ephemeral drainage. SEECO, Inc. provided plats detailing both well pad designs and area of coverage for the proposed APDs. The proposed federal wells will be drilled horizontally for gas development. Drilling plans for the wells were submitted with the APDs and will be reviewed by BLM as part of the approval process.

Construction

The specific plans for construction of the site are included in the Surface Use Program (SUP) of the APD. The SUP is incorporated by reference into this EA, is maintained in the appropriate well file at the BLM, Southeastern States Field Office, and is available for review.

The three APDs are located on the same well pad which utilizes a square-shaped well pad (270' X 390') approximately 2.42 acres of disturbance in size. A reserve pit will be constructed on the northeast side of the well pad for discharge of the drilling cuttings/fluids. The reserve pit is 200' X 300' and approximately 1.38 acres of disturbance. The reserve pit is mainly for cuttings due to the use of a "closed-loop" system. The access road right-of-way (ROW) dimensions are 50' X 415' being approximately 0.5 acres in disturbance on private land across a wooded area. The well pad area will be leveled for support of a drilling rig and the area will be cleared around the proposed dimensions given by SEECO, Inc. for the well pad, reserve pit, and access road. Those

disturbed areas around the well pad are known as clearing limits and are calculated in the total disturbed acres amount of 8.5 acres. The pad's elevation is at $\pm 716'$. Other design features are included in the SUP.

Drilling

The specific plans for drilling operations are included in the Drilling Programs (DP) of each APD submitted by SEECO, Inc. This program is incorporated by reference into this EA. The DP is maintained in the well file at the BLM, Southeastern States Field Office and is available for review. All wells will be drilled to a depth of approximately 3,000 feet total volume depth (TVD). The casing and cementing program for each APD was submitted and reviewed by BLM and, if necessary, will be modified to meet BLM standards, if an issue of safety or integrity is found. BLM regulations require that the operator isolate freshwater-bearing strata and other usable safe drinking water formations containing 10,000 ppm or less of dissolved solids, and other mineral-bearing formations, and protect them from contamination (43 CFR 3162.5-2d). Surface casing would be placed below surface and cemented back to the surface to protect usable safe drinking water. The circulated mud and drilling fluids will be contained onsite in tanks due to operator using a closed-loop system. Cuttings will be discharged into a reserve pit. No water will be used from the private landowner's property in conjunction with drilling operations for any of the three wells. SEECO, Inc. has an agreement with the private landowner to transport by truck material and fluids needed in their operations across their property.

The blowout prevention program has been reviewed by BLM for assurance that, in the event of a blowout, each well can be controlled. SEECO, Inc. provided BLM the details of the well's production casing in the APD. The production casing of each well is in accordance with BLM regulations/standards. Other design features pertaining to drilling are included in the DP.

Production Facilities

Each well when completed will result in natural gas production. Production equipment will be put in place located on the well pad site for all wells. Production and gathering lines are detailed in the facility diagram which is part of each APD and DP submitted. Lines leaving the well pad will be laid in the well site's road right-of-way (ROW) established by the private landowner. Any new facilities or lines, SEECO, Inc. will have to submit them to BLM for approval by a Sundry Notice. Any new surface disturbance is subject to NEPA review. Any production facilities will be reviewed by BLM as part of the APD approval process to ensure proper construction, usage, and management.

Reclamation

The reclamation plan applies to all disturbed areas following a dry hole or abandonment of any well and to all areas not needed for production of that producing well. A well will be plugged after completion and no limbs, trees, or tops will be placed in the reserve pit. Other aspects of the project relative to reclamation are addressed in the SUCOA submitted by BLM. Upon final abandonment and reclamation, BLM will inspect the plugging operations completed by SEECO, Inc. and inspect final reclamation of the site to ensure it has met BLM reclamation standards. Well site is located on private surface and a surface use agreement (SUA) is in place between the

private landowner and SEECO, Inc. BLM will respect the private landowner's wishes of surface use in the SUA. If private landowner has no plans for final reclamation, BLM will propose that SEECO, Inc. restore the well site to conditions prior to well construction for final reclamation approval. Plugging and reclamation stages are subject to BLM's approval before well site can be released from SEECO, Inc.'s responsibility and liability.

No Action

The only other alternative to the two decisions being considered by BLM is "No Action". The "No Action" decision's result would be to not authorize the three proposed APDs submitted by SEECO, Inc. to BLM. No revenues would be obtained by this action and potential drainage from private wells neighboring the federal lease could occur. The "No Action" alternative would potentially jeopardize BLM's policy 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. 3 – DESCRIPTION OF THE AFFECTED ENVIRONMENT

Introduction

Based on review of the elements listed on the SSFO NEPA Form and consideration of the Purpose and Need statement prepared for this EA, the following elements will be addressed in this EA: Environmental Justice, Cultural/Paleontology, Native American Religious Concerns, Recreation, Visual Resources, Minerals, Energy Policy, Surface Protection, Hazardous Material, Soils, Air Quality, Floodplain, Water Quality, Wetlands/Riparian Zones, Invasive & Non-Native Spp., Wildlife/Botanical Spp., and T&E Wildlife/Botanical Spp.

Description of Project Area

This area is situated in the Arkansas Valley Eco-region in Northern Arkansas. The Arkansas Valley Eco-region is a synclinal and alluvial valley lying between the Ozark Highlands and the Ouachita Mountains. The Arkansas Valley is, characteristically, diverse and transitional. It generally coincides with the Arkoma Basin that developed as sand and mud were deposited in a depression north of the rising Ouachita Mountains during the Mississippian and Pennsylvanian eras. The Arkansas Valley contains plains, hills, floodplains, terraces, and scattered mountains. It is largely underlain by inter-bedded Pennsylvanian sandstone, shale, and siltstone. Prior to the 19th century, uplands were dominated by a mix of forest, woodland, savanna, and prairie whereas floodplains and lower terraces were covered by bottomland deciduous forest. Today, less rugged upland areas have been cleared for pastureland or “hayland” (land used for the production of hay). Poultry and livestock farming are important land uses.

The proposed wells are located on an area of private property that is wooded. The area once was used for farming but over the years re-growth of trees and brush reclaimed the proposed well site area. An old stone wall is all that is left from the farm that used to be on location years ago. Location is rolling topography. Well site construction will involve the removal of trees and brush but the old stone wall will not be disturbed.

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

An archaeological survey has been conducted of the well pad area by Panamerican Consultants, Inc. No cultural resources had been previously recorded for this location. No evidence of either historical, archeological or occupation sites were discovered by the field investigations. No previously recorded archeological sites are within the general vicinity of the project area.

Native American Religious Concerns

Federally recognized Native Americans have been contacted. Known areas used for religious practices are not present. However, areas that may be considered sacred may be present. These areas would be evidenced by the discovery of unknown human burials or the traditional location for gathering an herb used in religious practice.

Recreation/Visual/Noise Resources

Boating, ATV riding, fishing and hunting are the normal outdoor recreation for this area. Van Buren County, Arkansas has abundant resources and land (private and government) available to accommodate these types of activities. However, access to these recreational resources can be limited due to remoteness or private property.

The visual resources found in the project area consist of wooded areas, cattle and chicken farms, small house structures, county road to the south, secondary roads, existing well pads, and small ponds/lakes. The existing visual resources in the immediate vicinity of the proposed actions have more of a rural appearance even though of its close proximity to the community of Choctaw, Arkansas being only about 2 miles away to the northeast.

Existing sources of noise are limited to petroleum development activities, vehicular traffic on state highways, county roads and other existing secondary roads, and/or private landowners nearby.

Energy Policy/Minerals

As manager of more public land than any other Federal agency, the Bureau of Land Management has a key role in implementing the Energy Policy Act of 2005. The BLM's management of 256 million surface acres and 700 million subsurface acres of mineral estate provides for multiple uses of the land, including energy development. The proposed APDs look to produce gas from approximate depths of 3,000 feet in Van Buren County, Arkansas.

Wastes, Hazardous or Solid

During the on-site inspection, no waste site (hazardous or non-hazardous) being solid or liquid was found in the project area. The private property is utilized for recreational hunting. From the onsite, nothing in the surrounding area has had signs of being impacted from trash or other waste material.

Soils

The soil types associated with this project area according to the Natural Resource Conservation Service (NRCS) are Steprock, Enders, and Mountainburg soils.

The Steprock series consists of moderately deep, well drained, moderately permeable soils formed in residuum and colluvium weathered from inter-bedded sandstone, siltstone, and shale.

Solum thickness and depth to Cr horizons range from 20 to 40 inches. Depth of unweathered hard bedrock is 60 inches or more. Reaction is strongly acid or very strongly acid except where surface layers are limed. Steprock soils are on sideslopes of ridges and hills at intermediate elevations of the uplands in MLRAs 117 and 118. These soils dominantly have slopes between 8 and 20 percent but range from 3 to 60 percent. The soil formed in loamy residuum or residuum and colluvium weathered from sandstone, siltstone, and shale of the Atoka formation or similar acid low base bedrock. Near the type location, average annual temperature ranges from 60 degrees to 63 degrees F., and average annual precipitation ranges from 45 to 50 inches. Most of these soils are used for pasture. Forests are blackjack, post, red and white oaks, blackgum, hickory, and shortleaf pine. A small amount is used for cultivated row crops.

The Enders series consists of deep, well drained, very slowly permeable soils that formed in loamy and clayey residuum from shale, or interbedded shale and sandstone. These soils are on nearly level to moderately steep upland mountaintops and ridges and gently sloping to very steep mountain sideslopes and footslopes. Slopes range from 1 to 65 percent. Solum thickness ranges from 32 to 60 inches. Depth to bedrock ranges from 40 to more than 60 inches. Reaction in all horizons ranges from strongly acid to extremely acid, except where the surface soils have been limed. Coarse fragments of sandstone and shale range from 0 to 60 percent by volume in the A and E horizons; 0 to 35 percent in the BA, BE and Bt horizons and 5 to 60 percent by volume in the BC and C horizons. The soil formed in loamy and clayey residuum weathered from shale or interbedded shale and sandstone of late Mississippian or Pennsylvanian age. Enders soils on moderately steep to very steep sideslopes and footslopes may have a thin layer of loamy colluvium over the clayey residuum. Average annual air temperature at the type location is about 60 degrees F.; average annual precipitation is about 49 inches. Most of this soil is in forest, but some is cropped to cotton, corn, and small grains. Native vegetation was post oak, red oak, white oak, hickory, and shortleaf pine.

The Mountainburg series consist of shallow, well drained, moderately rapidly permeable soils that formed in residuum of sandstone. These nearly level to very steep soils are upland ridgetops, plateaus and mountainsides. Slopes range from 1 to 65 percent. The soils formed in residuum of hard, massive, horizontally bedded sandstone. The mean annual temperature is about 59 degrees F. Average annual rainfall ranges from 42 to 52 inches. Most areas are in woodland. Vegetation is dominantly mixed hardwood forests of upland oaks, elms, and hickories, or is in mixed hardwood pine-forest. Minor areas have been cleared and are in pasture.

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 the 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). These include carbon monoxide, nitrogen dioxide, ozone,

sulfur dioxide, total suspended particulate, particulate matter less than 10 microns, and lead. The area of the proposed well is within standard ranges for air quality. No emissions are present on said property that would be outside the parameters of federal and/or state air emission and quality standards.

Water Quality, Surface/Ground

Surface Water Quality

The Arkansas River Valley Region exhibits distinct seasonal characteristics of its surface waters with zero flows common during summer critical conditions. Peak runoff events from within this region tend to introduce contaminants from the predominantly agricultural land use, which are primarily pasture lands with increasing poultry production. The development of natural gas has resulted in some site-specific water quality degradation. Soil types in much of this area are highly erosive and tend to easily go into colloidal suspension, thus causing long-lasting, high-turbidity values (ADEQ 2008).

Ground Water Quality

Almost all of the surficial aquifers supply water of good to very good quality, ranging from calcium-bicarbonate to sodium-bicarbonate water types. Areas of poor water quality can result from both natural and anthropogenic sources. Natural sources of contamination are typically regional in extent and are related to water-rock interactions. Anthropogenic impacts include both point and nonpoint sources of contamination. Nonpoint sources can result in large areas of impact, although contaminant concentrations typically are significantly lower than point sources, and the contaminants typically represent soluble, non-reactive species. Point sources of contamination often result in elevated levels of contaminants that exceed federal maximum contaminant levels; however, the extent of contamination normally is confined to a small area, with little to no offsite migration or impact on receptors (ADEQ 2008).

The initial Arkansas Nonpoint Source Pollution Assessment (1988) assessed approximately 4,068 miles of stream and found that 58 percent of the assessed streams were not meeting all designated uses. Limited data for the 79 significant publicly owned lakes indicated no use impairment by nonpoint sources. The 1988 assessment identified agriculture and mining as the primary categories of nonpoint source pollution causing impairments to water bodies of the state (ADEQ 2008).

The 1988 assessment was updated in June 1997, using updated assessment criteria. The 1997 report assessed 8,700 stream miles and indicated that nonpoint source pollution was impacting (but not necessarily impairing) more than 4,100 stream miles. Agricultural impacts were identified as the major cause of impacts on 3,197 stream miles. Other major impacts were related to silviculture activities, road construction/maintenance activities, and unknown sources. The unknown source was mercury contamination of fish tissue (ADEQ 2008).

Wetlands/Riparian Areas/Floodplains

The project area is within the Arkansas River valley. Surrounding the well site is farmland, livestock ranching, and timber production. Drainage is usually north to south. Well site area is on level to rolling topography. Stormwater on the western portion of the tract flows southwest off the property. Stormwater on the northeastern portion of the property flows south off the property. All stormwater ultimately flows into an unnamed tributary of Choctaw Creek, hence to Choctaw Creek. Stormwater would travel approximately 1.2 miles before entering Choctaw River. There is a small pond to the north of the proposed well site but it is up-hill with little to no likelihood of impacts from well pad construction. The drain/draw to the west could be affected if sediment or other material leaves the well site but protective measures against erosion and removal of trash are conditions applied by BLM to prohibit such an occurrence. Since the draw is less than 250 feet from the well site, an exception would need to be granted from the lease stipulations of both federal leases: ARES-56359 and ARES-56360 for freshwater aquatic habitat.

Invasive/Exotic Species

Harbor Environmental and Safety conducted a field survey of the project area on December 12, 2012. No exotic species were observed on the area of interest. However, there are several exotic species with the potential to occur including: Japanese honeysuckle (*Lonicera japonica*), shrubby bushclover (*Lespedeza frutescens*), Chinese privet (*Ligustrum sinense*), Chinese bushclover (*L. cuneata*), Japanese privet, (*L. japonicum*), and yellow sweetclover (*Melilotus officinalis*).

Special Status Species

Table 1 presents the species listed by the U.S. Fish and Wildlife Service (FWS) as known to occur in Van Buren County, Arkansas. The table also presents a summary of effects from the proposed construction activities on those species. Specific information regarding habitat requirements and rationale for those determinations are provided below under each species section. Table 2 presents the Arkansas Natural Heritage Commission rare species list.

Federally Listed Species

Table 1: Summary of effects to federal listed species.

Species	Federal Status	Determination	Rationale
Speckled Pocketbook (<i>Lampsilis streckeri</i>)	Endangered	May affect, not likely to adversely affect	No suitable habitat within project area.
Yellowcheek Darter (<i>Etheostoma moorei</i>)	Endangered	May affect, not likely to adversely affect	No suitable habitat within project area.
Gray bat (<i>Myotis grisescens</i>)	Endangered	No affect	No suitable habitat within project area.
Bald Eagle (<i>Haliaeetus</i>)	Delisted (Protected under	No affect	No suitable habitat within

<i>leucocephalus</i>)	the Bald and Golden Eagle Protection Act)		project area.
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Speckled pocketbook (*Lampsilis strekeri*) (Endangered)

The speckled pocketbook is a medium-sized (reaching approximately 80 mm in length) freshwater mussel with a thin, dark-yellow or brown shell with chevron-like spots, and chain-like rays. Like other freshwater mussels, the speckled pocketbook feeds by filtering food particles from the water column. The specific food habits of the species are unknown, but other juvenile and adult freshwater mussels have been documented to feed on detritus, diatoms, phytoplankton, and zooplankton. The diet of speckled pocketbook glochidia, like other freshwater mussels, comprises water (until encysted on a fish host) and fish body fluids (once encysted). This species is typically found in coarse to muddy sand with a constant flow of water. The speckled pocketbook is not associated with slow current, pools, or stretches of rivers with intermittent flow.

Historically, populations occurred in Archey, Middle, and South Forks of the Little Red River, Van Buren County, Arkansas. Currently, the speckled pocketbook can only be found north of Greers Ferry Lake in the upper Little Red River watershed. This species has been found in recent years from the following streams in the Little Red River drainage: Archey, Beech, Middle, South, and Turkey Forks of the Little Red River, and Big Creek. It is also of note that the Middle Fork of the Little Red River has recently been designated by the FWS as Critical Habitat for yellowcheek darter. The Speckled Pocketbook is unlikely to occur on the tract due to the distance to stream bodies. However, this tract is within the Choctaw Creek watershed. As a result, runoff from the proposed well site could impact water quality and quantity in this watershed which could in turn have an effect on this species.

Yellowcheek darter (*Etheostoma moorei*) (Endangered)

The yellowcheek darter (*Etheostoma moorei*) is a small and compressed fish which attains a maximum standard length of about 64 mm (2.5 inches), has a moderately sharp snout, deep body, and deep caudal peduncle. The back and sides are grayish brown, often with darker brown saddles and lateral bars. Breeding males are brightly colored with a bright blue or brilliant turquoise breast and throat and light green belly, while breeding females possess orange and red-orange spots but are not brightly colored. First collected in 1959 from the Devils Fork tributary of the Little Red River, this species was eventually described by Raney and Suttkus in 1964, using 228 specimens from the Middle Fork, South Fork, and Devils Fork tributaries of the Little Red River. The yellowcheek darter is one of only two members of the subgenus *Nothonotus* known to occur west of the Mississippi River. The Yellowcheek Darter is unlikely to occur on the tract due to the distance to stream bodies. However, this tract is within the Choctaw Creek watershed. As a result, runoff from the proposed well site could impact water quality and quantity in this watershed which could have an effect on this species.

Gray bat (*Myotis grisescens*) (Endangered)

This species occurs mainly in the karst region of the eastern and central U.S. and is highly vulnerable to disturbance. Only a few caves contain most of the individuals. As a result of

ongoing cave protection efforts, the total population is increasing. Each summer colony occupies a traditional home range that often contains several roosting caves scattered along as much as 70 kilometers of river or reservoir borders. Individuals forage along rivers or shoreline up to 20 km from their roosts. Forested areas along the banks of streams and lakes provide important protection for adults and young. Young often feed and take shelter in forest areas near the entrance to cave roosts. This species does not feed in areas along rivers or reservoirs where the forest has been cleared. No caves are located on the proposed site and no known caves are located in the immediate surrounding area. The gray bat is unlikely to roost on the tract as there is no suitable habitat located on or near the tract.

Bald Eagle (*Haliaeetus leucocephalus*) (delisted – monitoring program)

The bald eagle was delisted in 2007 due to recovery. A five year monitoring program has been established to ensure that bald eagle populations are stable, and that delisting continues to be appropriate for this species. Bald eagles will remain protected under the Bald and Golden Eagle Protection Act, as well as the Migratory Bird Treaty Act. Bald eagles are associated with large inland lakes, large rivers and coastal waters and use large old growth pine, bald cypress and some oak species, usually within ¼ mile of inland lakes and large rivers for nesting and loafing. There are no large lakes or rivers near the proposed site therefore suitable habitat for this species is not present.

State Listed Species

The Arkansas Natural Heritage Commission (ANHC) has identified numerous sensitive invertebrate, vertebrate and plant species in Van Buren County. Many of those species occur in rare or unique habitats such as prairies, sandstone glades, rocky outcroppings and rocky riverine edge habitat. There were no federal or state listed species observed on the survey date.

Migratory Bird Species of Concern

The following provides a list of migratory birds with the potential to occur based on their preferences for pine forests:

Species	Suitability of Habitat
Chuck's will's widow	Marginal
Red-headed woodpecker	Marginal
Scissor-tailed flycatcher	Marginal
Woodthrush	Marginal
Short-eared owl	Marginal
Brown-headed nuthatch	Optimal

No migratory bird species of concern were observed on the date surveyed. Migratory bird species of concern are unlikely to occur on the project area due to unsuitable homogenous pine forest habitat.

Wildlife and Vegetation

The Baker 10-14; 3, 4, 5 tract is currently undeveloped and forested. The tract is comprised primarily of mature pine and cedar trees (*Juniperus virginiana*). The pine trees are primarily

shortleaf pines (*Pinus taeda*) ranging from 6 to 18 inches in diameter. The cedar trees on site are rather large, some ranging from 12 to 24 inches in diameter. Few hardwood trees were observed on the tract and typically ranged from 6 to 12 inches in diameter. The density of trees is fairly uniform throughout the tract, however there is some evidence of recent selective tree harvesting. The general topography of the location is slightly hilly.

Several man-made features are evident on the tract including, a pond, an old barbed wire fence, and an old stone wall ranging from 1 to 3 feet tall running parallel with the southeastern well site boundary. The stone wall was a minimum of 40 feet from the well boundary. Stormwater on the western portion of the tract flows southwest off the property. Stormwater on the northeastern portion of the property flows south off the property. All stormwater ultimately flows into an unnamed tributary of Choctaw Creek, thence to Choctaw Creek which eventually drains into Greers Ferry Reservoir.

Species likely to occur include: red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), turkey vulture (*Cathartes aura*), northern cardinal (*Cardinalis cardinalis*), blue jay (*Cyanocitta cristata*), eastern cottontail (*Sylvilagus floridanus*), coyote (*Canis latrans*), monarch butterfly (*Danaus plexippus*), dragonflies (*Aeshna* spp.), Tabanid flies and various isopods and arachnids.

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 SSFO NEPA Form and consideration of the Purpose and Need statement prepared for this EA, the following elements will be addressed in this EA: Environmental Justice, Cultural/Paleontology, Native American Religious Concerns, Recreation, Visual Resources, Energy Policy, Minerals, Surface Protection, Hazardous Material, Soils, Air Quality, Water Quality, Floodplain, Wetlands/Riparian Zones, Invasive & Non-Native Spp., Wildlife/Botanical Spp., and T&E Wildlife/Botanical Spp.

Environmental Justice

No adverse human health and environmental effects will be anticipated that would encompass or affect minority and low-income populations in the area surrounding the well sites discussed in this EA.

Cultural Resources:

Direct and indirect impacts to known Historic Properties listed, eligible for listing, or potentially eligible for listing on the National Register of Historic Places will not occur with this action as

proposed. However, direct and indirect impacts to currently unknown sites may occur. Impacts may include destruction by ground disturbing activities associated with the military mission of the Arkansas National Guard, or the movement of surface artifacts through degradation processes. Direct and indirect impacts could lead to the total destruction of a site. If an unknown site is discovered through any aspect of this undertaking, and if activities causing disturbance to the site would cease until additional consultation among the SMA, the operator, the SHPO, Native Americans, other interested persons/agencies and the BLM occurs, adverse impacts to any potentially significant sites could be mitigated.

Native American Religious Concerns:

Direct and indirect impacts to known places used by Native Americans for religious activities will not occur, because none is known. However, if such a place is discovered or a place of religious importance such as human remains, through activities associated with this action, and the condition of approval is followed, impacts would be mitigated.

Recreation/Visual/Noise Resources

The proposed well site for all three APDs is not near areas used for recreational purposes other than hunting from private landowner, nor is either well site visible from any residences. Residences in the area are accustomed to seeing oil and gas activity with no known objections to BLM of such activity. Because hunting is regulated by the state of Arkansas and wild game in Van Buren County is plentiful, hunting activities occur only at certain times of the year for each game species by state law. Hunting prohibitions for the well sites would be a short-term, direct impact while drilling but long-term impacts are not expected. Cumulative impacts to hunting wild game in this area should not occur.

Noise generation from well operations, would be associated with vehicle movements and the operation of production equipment. Impacts from noise on people and wildlife species inhabiting the areas are expected to be minimal and of occasional, short duration in case of required maintenance onsite.

Energy Policy/Minerals

Approving SEECO, Inc.'s wells would be keeping in line with BLM's responsibility for energy development and management. Approving the APDs will ensure that the U.S. government resources are not drained from private drilling in the surrounding area and that production of natural gas provides the U.S. government with appropriate royalties. 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.

Wastes, Hazardous or Solid

With approval of an APD, the operations for drilling would typically generate the following wastes; (a) discharge of drilling fluids and cuttings into the reserve pits, (b) waste generated from used lubrication oils and hydraulic fluids, some of which may be characteristic of, or listed as, hazardous waste, and (c) service company wastes as well as some general trash. Certain wastes unique to the exploration, development, or production of crude oil and natural gas have been exempted from federal regulation 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 not generated as a part of a transportation or manufacturing operation. The drilling fluids, drill cuttings, and the produced waters are

classified as a RCRA exempt waste, and the proposed action would not introduce any hazardous substance into the environment, if they are managed and disposed of properly under federal and state waste management regulations and guidelines. No cumulative impacts are anticipated to occur.

Soils

The action of constructing a well pad would have a direct, adverse impact on soils. These impacts would be limited to those areas where vegetation is removed and construction occurs. The 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, flow line construction, and wind and water erosion. 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. Prompt cultivation and re-vegetation will be specified in BLM Surface Use Conditions of Approval (SUCOA) to minimize the loss of soil productivity. This would also prevent an increase of siltation into drainages or streams from run-off. Most disturbances have already taken place due to both wells pads are in production. Any further soil impacts would be limited to maintenance of the well site and vehicle traffic. No cumulative impacts would be anticipated to result from this action.

Air Quality

Air quality would be slightly affected locally by exploration, development and abandonment. Dust created during road and well site construction would increase suspended particulates in the air. However, this impact would be localized to the immediate vicinity of the well sites and flow line construction and would be of short duration. Dust from traffic and smoke and other emissions from vehicles and stationary engines used in drilling operations and flow line construction could increase air pollutants but again, these impacts would be localized and of short duration. Cumulative impacts to air quality should not occur with approval of this action.

Wetlands/Riparian Areas/Floodplains:

An NSO stipulation for freshwater aquatic habitat is in place for the two federal leases this action covers. A draw/natural drain is approximately 230 feet from the well site to the west, and a small pond is located north of proposed well site. Approval of the APDs would include granting an exception to the lease stipulation, since the well site is within the area stipulated for NSO. The Operator would be required to use silt fencing and other erosion protective practices to minimize anything leaving the well pad before, during, and after construction. Implementation of these measures would be adequate to prevent substantial erosion, and would prevent sediment and/or other material from leaving the site, thus preventing adverse impacts to aquatic habitats.

Water Quality, Surface/Ground:

Waste fluids associated with oil and gas operations could potentially have an adverse impact on surface and ground waters if allowed to leach into surface and ground water, possibly degrading water quality. SEECO, Inc. informed BLM and is stated in each APD that all drilling fluids will be contained in tanks due to SEECO, Inc. using a “closed-loop” system and those tanks will be trucked off location and the fluid disposed of at an appropriate facility. No cumulative impacts are anticipated as a result of this action.

Invasive/Exotic Species

Surface disturbances can 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).

Regarding invasive species, SEECO, Inc. will apply BLM’s recommended use of native grasses for re-vegetation efforts and requires post-construction monitoring for invasive species.

A Condition of Approval (COA) regarding invasive species applies to this proposal and recommends the use of native grasses for revegetation efforts and requires post-construction monitoring for invasive species.

Special Status Species

No special status species (threatened, or endangered) are known to occur or expected to occur at the proposed site due to a lack of suitable habitat. BLM has determined that there should be “no affect” for the gray bat and bald eagle due to a lack of suitable habitat. BLM has determined that there “may be an affect, but is not likely to adversely affect” the speckled pocketbook and yellowcheek darter. Although there is no suitable habitat for these species on the proposed site, this site is within the Choctaw Creek watershed which drains into Greers Ferry Reservoir. As a result, runoff from the proposed well site could impact water quality and quantity in this watershed which could in turn have an effect on these two species.

Informal consultation was initiated with FWS on February 7, 2013. FWS concurred with our determination of “no affect” for the gray bat and bald eagle and “may affect, but not likely to adversely affect” the speckled pocketbook and yellowcheek darter (Appendix C). While their records did not indicate any bald eagles in the project area, bald eagle guidelines should be followed in accordance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Consultation with the ANHC occurred on February 8, 2013. The ANHC reviewed their files for records indicating the occurrence of rare plants and animals, outstanding natural communities,

natural or scenic rivers, or other elements of special concern within or near the project site. No records were found.

To ensure the conservation of listed animals and plants, COAs regarding rare species apply to this proposal.

Wildlife and Vegetation

Some species may be affected by initial clearing of the area. In addition, the high number of cleared acreage surrounding the proposed site for oil or gas projects has likely either diminished less mobile species populations, such as reptiles or amphibians, in the area or forced more mobile species such as birds and mammals to move elsewhere. Wildlife use of the site after the well is put into production would vary depending on vegetation and successional stage. Once put into production the well pad would be reduced in size and the reserve pit area would be graded and seeded. The producing well site would be subject to regular maintenance and inspection. Wildlife use of the site is dependent on the adequacy of the restoration. Some acreage will more than likely never again be available for species utilization. Particular care should be given to ensure that erosion or other sediments from construction activities do not drain into Choctaw Creek which could potentially affect species, including the yellowcheek darter and speckled pocketbook.

No Action

There are no environmental impacts associated with the "No Action Alternative". However, selection of that alternative would result in the loss of potential revenue from the proposed development of the gas wells. Future drilling activities from private wells in the area could pose future issues of drainage of federal minerals. "No Action" decision would not allow the BLM to protect federal mineral interests from drainage of private wells around the BLM lease area.

Cumulative Impacts

Oil and Gas development does create impact that is cumulative as more development occurs. The cumulative impacts currently, though, are negligible since new disturbance from oil and gas development is minimal. The well site could have the possibility for more additional wells including the three proposed wells in this EA depending on SEECO's future production plans. Having multiple wells on one pad will help curve cumulative impacts from oil and gas development. When a well site is no longer producing, it is plugged, abandoned, and surface is reclaimed, so no cumulative impacts are expected to occur due to oil and gas production from the well.

CH. 5 - LIST OF PERSONS CONSULTED

List of Preparers

Specialist Name

Title, Organization

Brian Kennedy

Physical Scientist, BLM

John Sullivan

Archeologist, BLM

Gary Taylor

Planning and Environmental Coordinator, BLM

Alison McCartney

Natural Resource Specialist

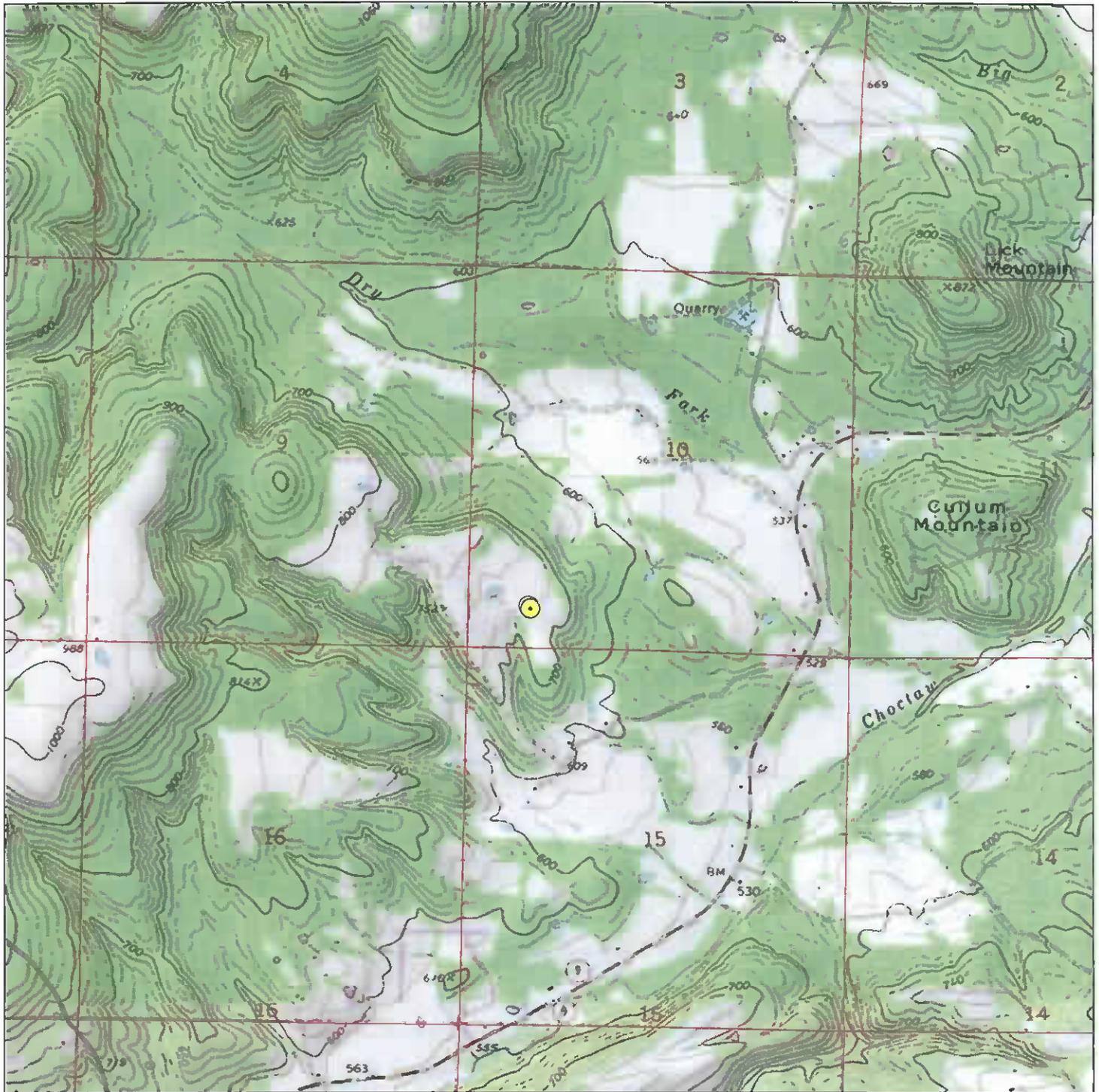
Faye Winters

Wildlife Biologist, BLM

APPENDIX A

Maps

Proposed Federal Oil & Gas Well
 Company: SEECO, Inc.
 Well Names: Baker 10-14 #3-10H4, #4-10H3, and #5-10H3
 Van Buren County, Arkansas
 T. 10N, R. 14W, Sec. 10; 5th Principal Meridian



Legend

 Proposed Well Locations

Proposed Baker 10-14 #3-10H4 Well:
 (T10N, R14W, Sec 10 - 559' FSL & 845' FWL)

Proposed Baker 10-14 #4-10H3 Well:
 (T10N, R14W, Sec 10 - 576' FSL & 835' FWL)

Proposed Baker 10-14 #5-10H3 Well:
 (T10N, R14W, Sec 10 - 542' FSL & 855' FWL)



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



This map contains portions of the following USGS 1:24,000
 Topographic Quadrangle: Clinton

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.

APPENDIX B

Surface Use Conditions of Approval

Bureau of Land Management's
Surface Use Conditions of Approval (SUOCA)

**Section 10, T. 10 N., R. 14 W., 5th Principal Meridian, Van Buren County, Arkansas
on BLM Leases ARES-56359 and ARES-56360**

Wells: Baker 10-14 #3-10H4, Baker 10-14 #4-10H3, and Baker 10-14 #5-10H3

1. If previously unknown sites of religious activities and previously unknown Native American burials are discovered during any ground disturbing activity or any part of this action, these activities will cease so that consultation with appropriate Native American groups will take place. The Authorizing Officer will tell the operator within five (5) working days when or if work may proceed.

2. The operator will avoid known cultural/historic sites during all construction and will be held responsible for informing all persons working at the drill site that they are subject to prosecution for knowingly disturbing human remains, historic or archaeological sites and for collecting artifacts (Archaeological Resources Protection Act of 1979, as amended [16 United States Code 470] [43 CFR 7.4]). If human remains, historic or archaeological materials are uncovered during construction, the operator will immediately stop work that might further disturb such materials and contact the BLM, the landowner, and the State Historic Preservation Officer (SHPO) (36 CFR 800.11(b)(3)). Within five working days, the BLM, in consultation with the landowner and the SHPO, will inform the operator as to options available and how/if operation in the area of the human remains, historic or archaeological material may proceed. In addition, if a previously unknown site is discovered, consultation with the Advisory Council on Historic Preservation and Native American groups may also be conducted before operations may proceed.

3. The operator is required to take necessary measures to ensure that an old rock wall near the well pad site and surrounds the private landowner's property remains undisturbed. This rock wall is not located within the construction boundaries of the proposed well site but operator is to avoid damaging the stone wall during construction activities. If any disturbance or damage of the rock wall occurs, operator is to contact the SSFO's Archeologist immediately and no further operations may proceed around the area where the rock wall is until SSFO's Archeologist advises on how to continue.

4. 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 should have been 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.

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, pigging 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 Best Management Practicess 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).

5. The operator is required to take necessary measures to ensure that the final graded slopes are stabilized and to prevent the movement of soil from the pad area for the life of the project. Because of the short term nature of the project and to allow for complete decomposition, only all organic fibers including both the filler and web will be used to allow for complete decomposition. This could include the use of natural matting (jute, coconut fiber, etc.) on steeper slopes and/or use of silt fence at the toe of the slope, or additional mulching. No plastic or inorganic netting will be permitted. Silt fences and other sediment control objects must be maintained throughout the construction and initial phases of drilling and production. After seeding of natural grasses has taken hold to stop erosion of sediments off the pad location, such sediment control devices can be removed.

6. Any construction activities should, by using preventative measures, avoid drainage of fluids, sediments, and/or other contaminants from the well pad into any nearby water bodies or natural drainage areas off of the well pad location.

7. Equipment, fuels, and other chemicals will be properly stored to minimize the potential for spills to enter surface waters. Secondary containment will be provided for all containers stored on site.

8. For safety and protection to the surface and surrounding area, operator must keep the area clean of trash and other debris as much as possible to avoid damaging or contaminating the human and environmental health surrounding the well pad location.

9. No aerial application of herbicides or pesticides will be permitted. 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.

10. 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.

11. All power-lines 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)

12. 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.

13. Speed on all operator-constructed and maintained (non-public) roads is advised to be around 25 miles per hour or less to minimize the chance of a collision with migratory birds or other federally listed wildlife species. Slower speeds allow for more reaction time to reduce potential vehicular injuries to wildlife. *Note: BLM can only advise of slower speeds.*

14. Disturbed lands will be re-contoured back to conform to existing undisturbed topography. No depressions will be left that trap water or form ponds. The operator will be responsible for re-contouring of any subsidence areas that may develop from after closing of the pit.

15. To discourage the spread of invasive, non-native plants it is recommended that native cover plants in seeding mixtures be used during reclamation activities. Final seed mixtures will be formulated in consultation with the private landowner. Post-

construction monitoring for cogon grass and other invasive plant species should be conducted to ensure early detection and control. If invasive species are found, the proper control techniques should be used to either eradicate the species from the area or minimize its spread to other areas. If cogon grass is found on site, equipment should be washed before exiting the site to prevent the spread of this highly invasive species to other locations.

Regarding invasive species, SEECO, Inc. will apply BLM's recommended use of native grasses for re-vegetation efforts. Before interim and final reclamation of the well site, SEECO, Inc. will contact BLM for recommended native seed mixtures to be planted. BLM will also require post-construction monitoring for invasive species.

16. Phased reclamation plans will be submitted to BLM for approval prior to abandonment via a Notice of Intent (NOI) Sundry Notice. Individual facilities, such as well locations, pipelines, discharge points, impoundments, etc. need to be addressed in these plans as they are no longer needed. BLM will inspect those reclamation actions submitted by the operator to ensure that the operator has met all reclamation goals of the BLM and surface owner. A Notice of Intent to Abandon and a Subsequent Report of Abandonment must be submitted for abandonment approval by BLM. Final Abandonment Notice will be filed at the end awaiting BLM's approval of final reclamation. After BLM's approval of final reclamation, operator can be relinquished of its obligations and responsibilities to the well site.

ARES 56359 and ARES 56360 BLM Lease Stipulations

(1) Freshwater Aquatic Habitat

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

(2) 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.

(3) 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

(4) 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.

APPENDIX C

Correspondence



IN REPLY REFER TO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
110 S. Amity Road, Suite 300
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480



February 7, 2013

Mr. Brian Kennedy
Bureau of Land Management
411 Briarwood Drive, Suite 404
Jackson, MS 39206

Dear Mr. Kennedy,

The U.S. Fish and Wildlife Service (Service) received the biological assessments for the two well pad sites, Reed 10-14 7-5H8 and Baker 10-14;3,4,5, both near the city of Choctaw, Van Buren County, AR. Our comments are submitted in accordance with the Endangered Species Act (87 stat. 884, as amended: 16 U.S.C. 1531 et seq.; ESA).

The Service concurs with your determination that the proposed installation of the well pad sites "may affect, not likely to adversely affect" the yellowcheek darter (*Etheostoma moorei*), gray bat (*Myotis grisescens*), speckled pocketbook (*Lampsilis streckeri*), and the federally protected Bald Eagle (*Haliaeetus leucocephalus*). While our records do not indicate any Bald Eagle nests in the project area, Bald Eagle guidelines should be followed in accordance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d).

We appreciate your cooperation and interest in protecting endangered species. If you have any questions or comments, please contact Erin Leone at 501-513-4472 or Erin_Leone@fws.gov.

Sincerely,

Melvin Tobin
Deputy Field Supervisor

On Wed, Jan 16, 2013 at 3:55 PM, Kennedy, Brian <briankennedy@blm.gov> wrote:

Erin,

Our office would like for FWS to look over and consult BLM on T&E species, Special Status species, and anything else that the FWS would like to comment on for 2 well pad sites having 3 wells to be drilled on each. Attached are pdf maps for both well sites, a google earth file with both well sites, and a shapefile (GIS) for both well sites. One special note is that the Reed wells in Section 5 are on/in a man-made small pond. We have notified the Operator to contact the Corp of Engineers (COE) to evaluate the location. We appreciate FWS's assistance and consultation. Please send FWS response to my attention at:

Southeastern States Field Office
Bureau of Land Management
411 Briarwood Drive, Suite 404
Jackson, MS 39206

Thanks.

Brian Kennedy

Physical Scientist

Southeastern States Field Office

Bureau of Land Management

(601) 977-5473

On Mon, Feb 4, 2013 at 11:04 AM, Leone, Erin <erin_leone@fws.gov> wrote:

Brian,

Do you need to separate letters - one for each site? Or can I combine them into one letter? I had one of our interns draft the letter and she combined them, but if you need 2 separate letters its not a big deal.

Thanks,

Erin Leone

Endangered Species Biologist

U.S. Fish & Wildlife Service

Arkansas Field Office

110 S. Amity Road, Suite 300

Conway, Arkansas 72032

(501) 513-4472 - voice

(501) 513-4480 - fax

On Mon, Feb 4, 2013 at 11:32 AM, Kennedy, Brian <briankennedy@blm.gov> wrote:

You can combine them. Make sure that both site names (well names) are known in/written in the letter so we know what wells are being discussed. If there are any issues that the FWS has with a site...be sure to address those issues to that site by well site name. Thanks for all your help. We greatly appreciate it.

Brian

From: **Leone, Erin** <erin_leone@fws.gov>

Date: Thu, Feb 7, 2013 at 3:24 PM

Subject: Re: Consultation Request for BLM APDs in Van Buren County, AR

To: "Kennedy, Brian" <briankennedy@blm.gov>

The hard copy is finally in the mail. Here is an electronic one.

Erin Leone

Endangered Species Biologist

U.S. Fish & Wildlife Service

Arkansas Field Office

110 S. Amity Road, Suite 300

Conway, Arkansas 72032

On Feb 28, 2013, McCartney, Alison <Alison_mccartney@blm.gov> wrote:

Hi Erin,

Brian Kennedy in our office made a informal consultation request to your office for 2 well sites in Van Buren County (Reed and Baker Wells) (below). He mistakenly did not include a BLM determination for the project effects on the 4 listed/protected species occurring in Van Buren County; the speckled pocketbook, yellowcheek darter, gray bat, and bald eagle. We received the attached letter back from you stating that you concur with our determination of "may affect, not likely to adversely affect". Would it be possible for you to give me your justification for the may affect, not likely to adversely affect determination so that I can include it in my EA? The only water on both well sites are 1 small (~15 ft in diameter), man-made pond on each. So there isn't any available suitable habitat for the darter, pocketbook, or eagle. There are no caves on the sites or known caves near the sites so there wouldn't be roosting habitat for the gray bat. I'm having trouble explaining the "may affect, not likely to adversely affect" determination in my EA and am hoping you could shed some light on the subject.

Thanks!

Alison

Alison McCartney

Natural Resource Specialist

Bureau of Land Management

411 Briarwood Dr, Suite 404

Jackson, MS 39202

On Feb 28, 2013, Erin Leone wrote:

Partially my fault too :) I usually try to include our justification, but I did not. I think I was in a hurry that day. Do you want/need something more formal? Or will this suffice?

Both wells are in the Choctaw Creek watershed, which drains directly to Greers Ferry Reservoir, yellowcheek darters and speckled pocketbook are only found north of Greers Ferry Lake in the Upper Little Red River watershed. You were correct with the gray bat - no caves or suitable habitat for them. Bald eagles - no nesting or roosting locations known in the area.

Does that help? Let me know - I can redraft the letter if need be.

Erin

On Feb 28, 2013, Alison McCartney wrote:

Hi Erin,

Thanks for the info. No need to redraft the letter.

Thanks!

Alison



THE DEPARTMENT OF ARKANSAS
HERITAGE

Mike Beebe
Governor

Martha Miller
Director

Arkansas Arts Council

Arkansas Historic
Preservation Program

Delta Cultural Center

Mosaic Templars
Cultural Center

Old State House Museum

Historic Arkansas Museum

Date: February 22, 2013
Subject: Elements of Special Concern
Southwestern Energy Co., Proposed Gas Well Sites
Baker 10-14: 3,4, 5; Reed 10-14 7-5H8
ANHC No.: F-BLM.-13-001

Ms. Alison McCartney
Bureau of Land Management
411 Briarwood Drive, Suite 404
Jackson, MS 39206

Dear Ms. McCartney:

Staff members of the Arkansas Natural Heritage Commission have reviewed our files for records indicating the occurrence of rare plants and animals, outstanding natural communities, natural or scenic rivers, or other elements of special concern within or near the following sites:

Project Name	County	Quad. Name	Location
Baker 10-14 3, 4, 5	Van Buren	Clinton 7.5'	T10N/R14W/S10
Reed 10-14 7-5H8	Van Buren	Scotland 7.5'	T10N/R14W/S05

We find no records at present time.

It should be noted that in each of the Biological Assessments for these projects the following statement is made about speckled pocketbook (*Lampsilis streckeri*):

“Historically, populations occurred in Archey, Middle, and South Forks of the Little Red River, Van Buren County, Arkansas. Within the Little Red River drainage, the only known remaining population is in the Middle Fork. In the Middle Fork, the known range extends from the influence of Greers Ferry Reservoir near Shirley, Arkansas, upstream to the confluence of Meadow Creek.”

This statement is not currently accurate. Speckled pocketbook has been found in recent years from the following streams in the Little Red River drainage: Archey, Beech, Middle, South, and Turkey Forks of the Little Red River, and Big Creek. It is also of note that the Middle Fork of the Little Red River has recently been designated by the U.S. Fish and Wildlife Service as Critical Habitat for yellowcheek darter (*Etheostoma moorei*). Issues of water quality and quantity could be an issue in this watershed.

A Van Buren County Element list is enclosed for your reference. Represented on this list are elements for which we have records in our database. The list has been annotated to indicate those elements known to occur within a one and a five mile radius of each of the project sites. A legend is enclosed to help you interpret the codes used on this list.



Arkansas Natural Heritage
Commission



323 Center Street, Suite 1500
Little Rock, AR 72201

(501) 324-9619
fax: (501) 324-9618
tdd: 711

e-mail:
arkansas@naturalheritage.com
website:
www.naturalheritage.com

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Please keep in mind that the project area may contain important natural features of which we are unaware. Staff members of the Arkansas Natural Heritage Commission have not conducted a field survey of the study site. Our review is based on data available to the program at the time of the request. It should not be regarded as a final statement on the elements or areas under consideration. Because our files are updated constantly, you may want to check with us again at a later time.

Thank you for consulting us. It has been a pleasure to work with you on this study.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Osborne".

Cindy Osborne
Data Manager/Environmental Review Coordinator

Enclosures: Legend
Van Buren County Element List (annotated)

8/29/2012

Arkansas Natural Heritage Commission
Department of Arkansas Heritage
Inventory Research Program
Van Buren County

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Animals-Invertebrates					
R, 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	G4G5	S2
<i>Crangonyx aka</i>	an amphipod	-	INV	G1	S1?
R, B <i>Cyclonaias tuberculata</i>	purple wartyback	-	INV	G5	S3?
<i>Cyprogenia aberti</i>	western fanshell	-	INV	G2G3Q	S2
<i>Heterosternuta sulphuria</i>	Sulphur Springs diving beetle	-	INV	G1?	S1?
<i>Lampsilis satura</i>	sandbank pocketbook	-	INV	G2	S2
<i>Lampsilis siliquoidea</i>	fatmucket	-	INV	G5	S3
R, B <i>Lampsilis streckeri</i>	speckled pocketbook	LE	SE	G1Q	S1
<i>Lasmigona costata</i>	flutedshell	-	INV	G5	S3
R, B <i>Ligumia recta</i>	black sandshell	-	INV	G5	S2
<i>Obovaria jacksoniana</i>	southern hickorynut	-	INV	G2	S2
<i>Pleurobema rubrum</i>	pyramid pigtoe	-	INV	G2G3	S2
R <i>Ptychobranhus occidentalis</i>	Ouachita kidneyshell	-	INV	G3G4	S3
<i>Quadrula cylindrica cylindrica</i>	rabbitsfoot	C	SE	G3G4T3	S2
R <i>Simpsonaias ambigua</i>	salamander mussel	-	INV	G3	S1
<i>Speyeria diana</i>	Diana	-	INV	G3G4	S2S3
R <i>Toxolasma lividus</i>	purple liliptut	-	INV	G3	S2
R, B <i>Unio merus tetralasmus</i>	pondhorn	-	INV	G5	S2
<i>Venustaconcha pleasii</i>	bleedingtooth mussel	-	INV	G3G4	S3
R <i>Villosa iris</i>	rainbow	-	INV	G5Q	S2S3
R <i>Villosa lienosa</i>	litle spectaclecase	-	INV	G5	S3
Animals-Vertebrates					
<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
R <i>Erimystax harrisi</i>	Ozark chub	-	INV	G3G4Q	S3S4
<i>Etheostoma autumnale</i>	autumn darter	-	INV	GNR	S2
R, B <i>Etheostoma moorei</i>	yellowcheek darter	LE	SE	G1	S1
<i>Haliaeetus leucocephalus</i>	Bald Eagle	-	INV	G5	S2B, S4N
<i>Myotis grisescens</i>	gray myotis	LE	SE	G3	S2S3
<i>Notropis ozarcanus</i>	Ozark shiner	-	INV	G3	S2
<i>Ophisaurus attenuatus attenuatus</i>	western slender glass lizard	-	INV	G5T5	S3
<i>Pantherophis emoryi</i>	Great Plains rat snake	-	INV	G5	S3
R <i>Percina nasuta</i>	longnose darter	-	INV	G3	S2
R, B <i>Plethodon angusticlavius</i>	Ozark zigzag salamander	-	INV	G4	S3
R <i>Regina septemvittata</i>	queen snake	-	INV	G5	S2
Plants-Vascular					
<i>Asplenium pinnatifidum</i>	lobed spleenwort	-	INV	G4	S3
R, B <i>Callirhoe bushii</i>	Bush's poppy-mallow	-	INV	G3	S3
<i>Carex careyana</i>	Carey's sedge	-	INV	G4G5	S3
<i>Carex hirtifolia</i>	hairy sedge	-	INV	G5	S3

Van Buren County (cont.)

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
<i>Carex lupuliformis</i>	false hop sedge	-	INV	G4	S1S2
<i>Carex sparganioides</i>	bur-reed sedge	-	INV	G5	S3
<i>Caulophyllum thalictroides</i>	blue cohosh	-	INV	G4G5	S2
<i>Claytonia caroliniana</i>	Carolina spring-beauty	-	INV	G5	SU
<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 delphinium	-	INV	G3	S3
<i>Diphasiastrum digitatum</i>	southern running-pine	-	INV	G5	S1S2
<i>Dryopteris x leedsii</i>	Leed's wood fern	-	INV	GNA	S1
<i>Dulichium arundinaceum var. arundinaceum</i>	three-way sedge	-	INV	G5TNR	S2S3
<i>Eriocaulon koernickianum</i>	small-head pipewort	-	SE	G2	S2
<i>Heuchera villosa var. arkansana</i>	Arkansas alumroot	-	INV	G5T3Q	S3
<i>Nemastylis nuttallii</i>	Nuttall's pleat-leaf	-	INV	G4	S2
<i>Osmorhiza claytonii</i>	hairy sweet-cicely	-	INV	G5	S1S3
<i>Paronychia virginica</i>	yellow nailwort	-	INV	G4	S2
<i>Philadelphus hirsutus</i>	hairy mock orange	-	INV	G5	S2S3
<i>Scleria muehlenbergii</i>	Muhlenberg's nut-rush	-	INV	G5	S1S2
<i>Silene ovata</i>	ovate-leaf catchfly	-	ST	G3	S3
<i>Solidago ptarmicoides</i>	white flat-top goldenrod	-	INV	G5	S1S2
<i>Stylophorum diphyllum</i>	celandine-poppy	-	INV	G5	S3
<i>Symphyotrichum sericeum</i>	silvery aster	-	INV	G5	S2
<i>Tradescantia ozarkana</i>	Ozark spiderwort	-	INV	G3	S3
<i>Utricularia subulata</i>	zigzag bladderwort	-	INV	G5	S2
<i>Valerianella ozarkana</i>	Ozark cornsalad	-	INV	G3	S3
<i>Viola canadensis var. canadensis</i>	Canadian white violet	-	INV	G5T5	S2
Special Elements-Natural Communities					
Upland Stream-Ozark Mountains		-	INV	GNR	SNR
Special Elements-Other					
Geological feature		-	INV	GNR	SNR

* - No elements of special concern have been recorded within 1 mile of either the Baker or Reed sites.

^B - These elements of special concern have been recorded within 5 miles of the Baker site.

^R - These elements of special concern have been recorded within 5 miles of the Reed site.

LEGEND

STATUS CODES

FEDERAL STATUS CODES

- C = Candidate species. The U.S. Fish and Wildlife Service has enough scientific information to warrant proposing this species for listing as endangered or threatened under the Endangered Species Act.
- LE = Listed Endangered; the U.S. Fish and Wildlife Service has listed this species as endangered under the Endangered Species Act.
- LT = Listed Threatened; the U.S. Fish and Wildlife Service has listed this species as threatened under the Endangered Species Act.
- PD = Proposed for Delisting; the U.S. Fish and Wildlife Service has proposed that this species be removed from the list of Endangered or Threatened Species.
- PE = Proposed Endangered; the U.S. Fish and Wildlife Service has proposed this species for listing as endangered.
- PT = Proposed Threatened; the U.S. Fish and Wildlife Service has proposed this species for listing as threatened.
- T/SA = Threatened (or Endangered) because of similarity of appearance.
E/SA

STATE STATUS CODES

- INV = Inventory Element; The Arkansas Natural Heritage Commission is currently conducting active inventory work on these elements. Available data suggests these elements are of conservation concern. These elements may include outstanding examples of Natural Communities, colonial bird nesting sites, outstanding scenic and geologic features as well as plants and animals, which, according to current information, may be rare, peripheral, or of an undetermined status in the state. The ANHC is gathering detailed location information on these elements.
- WAT = Watch List Species; The Arkansas Natural Heritage Commission is not conducting active inventory work on these species, however, available information suggests they may be of conservation concern. The ANHC is gathering general information on status and trends of these elements. An "" indicates the status of the species will be changed to "INV" if the species is verified as occurring in the state (this typically means the agency has received a verified breeding record for the species).
- MON = Monitored Species; The Arkansas Natural Heritage Commission is currently monitoring information on these species. These species do not have conservation concerns at present. They may be new species to the state, or species on which additional information is needed. The ANHC is gathering detailed location information on these elements.
- SE = State Endangered; this term is applied differently for plants and animals.
- Animals – These species are afforded protection under Arkansas Game and Fish Commission (AGFC) Regulation. The AGFC states that it is unlawful to import, transport, sell, purchase, hunt, harass or possess any threatened or endangered species of wildlife or parts. The AGFC lists as endangered any wildlife species or subspecies endangered or threatened with extinction, listed or proposed as a candidate for listing by the U.S. Fish and Wildlife Service or any native species or subspecies listed as endangered by the Commission.
- Plants – These species have been recognized by the Arkansas Natural Heritage Commission as being in danger of being extirpated from the state. This is an administrative designation with no regulatory authority.
- ST = State Threatened; These species have been recognized by the Arkansas Natural Heritage Commission as being likely to become endangered in Arkansas in the foreseeable future, based on current inventory information. This is an administrative designation with no regulatory authority.

DEFINITION OF RANKS

Global Ranks

- G1 = Critically imperiled globally. At a very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

- G2 = Imperiled globally. At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3 = Vulnerable globally. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4 = Apparently secure globally. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 = Secure globally. Common, widespread and abundant.
- GH = Of historical occurrence, possibly extinct globally. Missing; known from only historical occurrences, but still some hope of rediscovery.
- GU = Unrankable. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- GX = Presumed extinct globally. Not located despite intensive searches and virtually no likelihood of rediscovery.
- GNR = Unranked. The global rank not yet assessed.
- GNA = Not Applicable. A conservation status rank is not applicable.
- T-RANKS= T subranks are given to global ranks when a subspecies, variety, or race is considered at the state level. The subrank is made up of a "T" plus a number or letter (1, 2, 3, 4, 5, H, U, X) with the same ranking rules as a full species.

State Ranks

- S1 = Critically imperiled in the state due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors making it vulnerable to extirpation.
- S2 = Imperiled in the state due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it vulnerable to extirpation.
- S3 = Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 = Apparently secure in the state. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 = Secure in the state. Common, widespread and abundant.
- SH = Of historical occurrence, with some possibility of rediscovery. Its presence may not have been verified in the past 20-40 years. A species may be assigned this rank without the 20-40 year delay if the only known occurrences were destroyed or if it had been extensively and unsuccessfully sought.
- SU = Unrankable. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- SX = Presumed extirpated from the state. Not located despite intensive searches and virtually no likelihood of rediscovery.
- SNR = Unranked. The state rank not yet assessed.
- SNA = Not Applicable. A conservation status rank is not applicable.

General Ranking Notes

- Q = A "Q" in the global rank indicates the element's taxonomic classification as a species is a matter of conjecture among scientists.
- RANGES= Ranges are used to indicate a range of uncertainty about the status of the element.
- ? = A question mark is used to denote an inexact numeric rank.
- B = Refers to the breeding population of a species in the state.
- N = Refers to the non-breeding population of a species in the state.



The Department of
**Arkansas
Heritage**

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Mosaic Templars
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Old State House Museum



**Arkansas Historic
Preservation Program**

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March 19, 2013

Mr. Duane Winters
Assistant Field Manager
Natural Resources Program Specialist
Bureau of Land Management
Eastern States
Southeastern States Field Office
411 Briarwood Drive, Suite 404
Jackson, Mississippi 39206

RECEIVED

APR - 1 2013

**BUREAU OF LAND MANAGEMENT
SSFO**

Re: Van Buren County – General
Section 106 Review – BLM
8100 (020) JMS Seeco Energy, Inc., Baker 10-14 3, 4 & 5-10H4/3
APD
Draft Report Titled “*SWN Cultural Resources Reports Volume 54:
Phase I Survey of the Baker 10-14, 4-10H3 Well Pad, Van Buren
County, Arkansas*”
PCI Report Number 32301
AHPP Tracking Number 85396

Dear Mr. Winters:

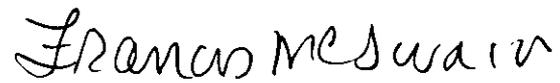
The staff of the Arkansas Historic Preservation Program has reviewed the above-referenced cultural resources report. This report documents fieldwork for a small well pad and associated lease road and gathering line. Please have the archeologist consider the following recommendations in the preparation of the final report.

- It is unfortunate that the area was cleared prior to archeological survey. Had a significant archeological site or architectural property been present this would have been a serious issue. For future undertakings, please complete Section 106 consultation before any construction, including clearing, is done on the subject property.
- Please register the stone wall discovered during the survey as an archeological site with the Arkansas Archeological Survey.

With the stipulation that an archeological site form is completed and submitted for the stone wall, we concur that the proposed undertaking will have no effect on historic properties.

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Eric Gilliland of my staff at 501-324-9880.

Sincerely,

A handwritten signature in black ink that reads "Frances McSwain". The script is cursive and fluid, with the first letters of each name being capitalized and prominent.

Frances McSwain

Deputy State Historic Preservation Officer

cc: Dr. Richard Allen, Cherokee Nation of Oklahoma
Mr. Andrew Buchner, Panamerican Consultants, Inc.
Dr. Ann Early, Arkansas Archeological Survey
Ms. Henryetta Ellis, Absentee Shawnee Tribe
Dr. Andrea A. Hunter, Osage Nation
Ms. Kim Jumper, Shawnee Tribe of Oklahoma
Ms. Lisa LaRue-Baker, United Keetoowah Band of Cherokee Indians



Panamerican Consultants, Inc.

Cultural Resource Management
Maritime Archaeology
Architectural History



11 March 2013

Eric Gilliland, Archeologist
Arkansas Department of Heritage
Arkansas Historic Preservation Program
1500 Tower Building, 323 Center Street
Little Rock, AR 72201

RE: Transmittal letter for Baker 10-14

Dear Mr. Gilliland

Please find the enclosed copy of the final report:

**SWN Cultural Resources Reports Volume 54: Phase I Survey of the Baker 10-14, 4-10H3
Well Pad, Van Buren County, Arkansas**

The rock wall near the Baker 10-14 well pad was assigned the AAS trinomial 3VB388, and it will not be disturbed by the proposed undertaking. It is 15 m east of the well pad edge.

Feel free to contact me as necessary at (901) 454-4733 regarding this submission.

Regards,

C. Andrew Buchner

PANAMERICAN CONSULTANTS, INC.
C. Andrew Buchner, RPA
Vice-President and Memphis Branch Manager

Enclosure: bound final report

CC: John Sullivan (BLM)



Sullivan, John M. <Sullivan@blm.gov>

Van Buren County Panamerican, application for permit to drill, Seeco Energy, INC

Baker APD

Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com>
Reply-To: ukbthpo-larue@yahoo.com
To: john_m_sullivan@blm.gov
Cc: Istapleton@unitedkeetoowahband.org

Wed, Apr 24, 2013 at 2:11 PM

The United Keetoowah Band of Cherokee Indians in Oklahoma has reviewed your project under Section 106 of the NHPA, and at this time have no comments or objections. However, if any human remains are inadvertently discovered, please cease all work and contact us immediately.

Thank you,

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

Please FOLLOW our historic preservation page and LIKE us on FACEBOOK

APPENDIX D

References

References Cited:

United States Department of Agriculture, Natural Resource Conservation Service.
<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

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<http://www.fws.gov/southeast/>

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Hamel, P. 1992. The Land Manager's Guide to the Birds of the South.

Peterson, R. 1980. Birds of Eastern and Central North America.

Arkansas Department of Environmental Quality (ADEQ).
<http://www.adcq.state.ar.us/>

Arkansas Historic Preservation Program, State Historic Preservation Office.
<http://www.arkansaspreservation.com/>

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, with the mitigation measures and stipulations described under "Surface Use Conditions of Approval", will not have any significant impacts on the human environment, and an environmental impact statement (EIS) is not required.

DECISION RECORD

It is my decision to authorize the Baker 10-14 #3-10H4 APD, Baker 10-14 #4-10H3 APD, and the Baker 10-14 #5-10H3 APD submitted by SEECO, Inc. in Van Buren County, Arkansas to flow natural gas produced from BLM's federal oil and gas leases: ARES-56359 and ARES-56360. Each APD was reviewed and accepted under NEPA guidelines and policy. The applicant's surface protection procedures, set forth in the proposed action, are included in the application and need not be formulated into stipulations. Measures identified for the proposed action in the environmental impact section of the EA have been formulated into "Surface Use Conditions of Approval" (SUCOA). SEECO, Inc. will adhere and follow said SUCOAs for both proposed APDs as part of their permit's approval. This decision incorporates by reference those measures and conditions addressed in the EA for approval of the three APDs submitted to BLM by SEECO, Inc.

RATIONALE FOR DECISION

The decision to allow the proposed action does not result in any undue or unnecessary environmental degradation and is in conformance with applicable plans.

Authorized Officer: _____

Bruce Dawson

Date: _____

6/6/2013