United States Department of the Interior
Bureau of Land Management

Eastern States
Southeastern States Field Office
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Jackson, Mississippi 39206
http://www.es.blm.gov

Environmental Assessment
EA-020-2015-3

Project Name: USA Parcel 3 #81H-Alt through USA Parcel 3 #86H-Alt APDs EA

Date: October 21, 2014

CH 1 – PURPOSE OF AND NEED FOR THE PROPOSED ACTION

Introduction

On September 9, 2013, Premier Natural Resources, LLC submitted six Applications for Permit to Drill (APD) to the Bureau of Land Management (BLM), Southeastern States Field Office. The APDs were submitted for the proposed USA Parcel 3 #81H-Alt through USA Parcel 3 #86H-Alt wells. The proposed well locations are approximately 4.5 miles west of Haughton, Louisiana, and are located on Barksdale Air Force Base (BAFB) in Bossier Parish. Three wells will be drilled on one location and the other three wells will be on separate well pads. The APDs were submitted in accordance with Onshore Oil and Gas Order No. 1 (43 CFR 3164), administered by the BLM. The proposed wells are located on property containing federally owned and leased oil and gas mineral rights (Appendix A). 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.

Premier Natural Resources, LLC submitted six APDs in accordance to Onshore Order #1 for the development of oil and gas resources under BLM jurisdiction. BLM's responsibility is to review such application 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 Premier Natural Resources, LLC's six APDs for the extraction of natural gas submitted to BLM. Approval of the APDs from Premier Natural Resources, LLC 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 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.

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, NEPA, Louisiana Department of Environmental Quality (LADEQ), The National Historic Preservation Act of 1966 (NHPA), 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 tribes were contacted for cultural compliance under Section 106 of the NHPA:

- Alabama-Quassarte Tribal Town
- Choctaw Nation of Oklahoma
- Jena Band of Choctaw
- Seminole Nation of Oklahoma
- Muscogee (Creek) Nation of Oklahoma
- Osage Nation
- Coushatta Indian Tribe
- Tunica-Biloxi Tribe of Louisiana
- Quapaw Tribe of Oklahoma
- Caddo Nation of Oklahoma
- Mississippi Band of Choctaw Indians
- Alabama-Coushatta Tribe of Texas
- Thlopthlocco Tribal Town

State and/or Federal Agencies contacted by BLM staff:

- Louisiana Historic Preservation Program, State Historic Preservation Officer
- U.S. Fish and Wildlife Services

The following BLM employees attended an onsite visit on December 18, 2013:

(1) John Sullivan, SSFO Archeologist
(2) Brian Kennedy, SSFO Physical Scientist
(3) Charlie Boyd, SSFO Petroleum Engineering Technician
(4) Michael Gibson, BAFB Biological 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 six APDs submitted by Premier Natural Resources, LLC. 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. BAFB agreed upon the location and surface disturbance of the proposed APDs. 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 six APDs. Three of the six proposed wells are co-located on one well pad location. The other three proposed wells are on separate but existing well pads. The preferred decision would allow the drilling of six natural gas wells to provide continued protection and development of federal mineral interests. Approving the APDs would give Premier Natural Resources, LLC the permission to begin developing the federal minerals of lease LABLMA-54491; 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 six APDs submitted by Premier Natural Resources, LLC. If the second decision was proven to be the appropriate and best course of action by BLM, the proposed APDs submitted would not be recommended by BLM to Premier Natural Resources, LLC for development or any future submittal of APDs for those locations. Royalties would not be collected and drainage of federal minerals could potentially occur 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 NEPA and other subsequent laws and policies passed by the U.S. Congress.

CH 2 – ALTERNATIVES INCLUDING THE PROPOSED ACTION

Introduction

The SSFO will review the APDs submitted by Premier Natural Resources, LLC for USA Parcel 3 #81H-Alt through USA Parcel 3 #86H-Alt natural gas wells. Premier Natural Resources, LLC submitted all six of these APDs to drill into federal lease: LABLMA-54491. The proposed well locations are approximately 4.5 miles west of Haughton, Louisiana, and are located on Barksdale Air Force Base (BAFB) in Bossier Parish. Surface elevation at all the proposed well sites range from 209 to about 217 feet above mean sea level, before construction.

APD Location

USA Parcel 3 #81H-Alt - 652' FSL and 821' FEL in Section 1, T. 17 N., R. 12 W.; Louisiana Meridian, Bossier Parish, Louisiana

USA Parcel 3 #82H-Alt - 440' FSL and 1544' FWL in Section 1, T. 17 N., R. 12 W.; Louisiana Meridian, Bossier Parish, Louisiana

USA Parcel 3 #83H-Alt - 430' FSL and 2375' FEL in Section 2, T. 17 N., R. 12 W.; Louisiana Meridian, Bossier Parish, Louisiana

USA Parcel 3 #84H-Alt - 431' FSL and 2420' FEL in Section 2, T. 17 N., R. 12 W.; Louisiana Meridian, Bossier Parish, Louisiana

USA Parcel 3 #85H-Alt - 432' FSL and 2465' FEL in Section 1, T. 17 N., R. 12 W.; Louisiana Meridian, Bossier Parish, Louisiana

USA Parcel 3 #86H-Alt - 703' FNL and 447' FEL in Section 3, T. 17 N., R. 12 W.; Louisiana Meridian, Bossier Parish, Louisiana

Proposed Action (Preferred Option)

The proposed action is to approve the drilling for all six APDs submitted by Premier Natural Resources, LLC with approximately 0.54 acres of total surface disturbance. Wells will utilize existing well pads with little new surface disturbance, if any. Premier Natural Resources, LLC provided plats detailing both well pad designs and area of coverage for each of the proposed APDs. The proposed federal wells will be drilled horizontally and hydraulically fractured for gas development. Drilling plans for the wells were submitted with each of the APDs and will be reviewed by BLM as part of the approval process.

Construction

The specific plans for construction of each proposed site are included in the Surface Use Program (SUP) of each of the APDs submitted by Premier Natural Resources, LLC. The SUP is incorporated by reference into this EA, is maintained in the appropriate well file at the BLM, SSFO, and is available for review.

The six proposed APDs will be located on existing well pads located on federally owned surface of BAFB. Three of the APDs are co-located on one well pad while the other three are each on separate well pads. A reserve pit will be utilized for each well for discharge of the drilling cuttings. Due to using existing locations, Premier Natural Resources, LLC will use the previous reserve pit of each existing site, which means digging out the previous pits. Drilling fluids will be contained in a "closed-loop" system, so drilling fluids are contained in tanks rather than the reserve pit. Premier Natural Resources, LLC will utilize existing access roads and pipelines for each well site. If need be, 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 Premier Natural Resources, LLC of each well for the drilling rig and any support facilities that will be located temporarily on site for the drilling operations of that well. There are three well pad locations with elevations ranging from ± 209 to 217'. Other design features are included in each of the SUPs submitted by Premier Natural Resources, LLC.

Drilling Operations

The specific plans for drilling operations are included in the Drilling Programs (DP) of each APDs submitted by Premier Natural Resources, LLC. This program is incorporated by reference into this EA. The DP is maintained in the well file at the BLM, SSFO and is available for review. All wells will be hydraulically fractured and horizontally drilled to a depth of approximately 8,285 feet total volume depth (TVD). The casing and cementing program for each APD submitted is 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. Water will be used from water wells located on BAFB in conjunction with drilling operations for any of the six wells. Premier Natural Resources, LLC will transport by truck any material and/or fluids needed in their operations for drilling, also.

The blowout prevention program has been reviewed by BLM for assurance that, in the event of a blowout, each well can be controlled. Premier Natural Resources, LLC provided BLM the details for each well's production casing in the APDs submitted. 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 Operations

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 BAFB. Any new facilities or lines will have to be approved by BAFB and BLM 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 surface use conditions of approval (SUCOA) submitted by BAFB and BLM. Upon final abandonment and reclamation, BLM will inspect the plugging operations completed and BAFB and BLM will inspect final reclamation of the site to ensure it has met BAFB's reclamation standards. The well site is located on federally owned surface of the United States Air Force. BLM will respect all the surface use conditions of BAFB and work with BAFB cooperatively to ensure final reclamation is satisfactory. Plugging and reclamation stages are subject to BAFB's consent and BLM's approval before the well site can be released from Premier Natural Resources, LLC'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 six proposed APDs submitted by Premier Natural Resources, LLC to BLM. Without approval, 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 NEPA 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 Resources, Native American Religious Concerns, Recreation, Visual Resources, Minerals and Mineral Development, Energy Policy, Surface Protection, Hazardous Material, Soils, Air Resources, Climate, Water Resources, Invasive & Non-Native Spp., Wildlife/Botanical Spp., and Threatened, Endangered, and Special Status Species.

Description of Project Area

The proposed APDs are located within Bossier Parish, Louisiana on BAFB's East Reservation. The project area is on the eastern edge of the Red River Valley within the tertiary uplands of the South Central Plains eco-region in northwestern Louisiana. Topography in the project area is dominated by low rolling hills, and much of the area is forested with mature stands of pine or mixed pine-hardwoods.

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. The proposed APDs are located within a federal military base. No housing, residential, or community centers are located within or near the proposed APDs. The nearest populated areas are approximately 3.5 miles from the Area of Interest (AOI).

Cultural Resources

The Area of Potential Effect (APE) of this project has been surveyed by Deep East Texas Archaeological Consultants, July 2013. There are sites within one mile of the proposed location; they are not eligible for listing on the National Register of Historic Places. All cultural resources in an area are not necessarily discovered during a survey. There is a potential that buried sites may be present. These sites, if any, might be potentially eligible for listing on the National Register of Historic Places.

Native American Religious Concerns

Federally recognized Native American tribes were contacted. Sites associated with Native American religious practices nor Traditional Cultural Properties have not been located within the boundaries of proposed disturbance. In addition, historic properties (36CFR800) will not be impacted by this action. This surface tract is privately owned. The BLM has no jurisdiction over surface access on the lands covered by this action and thus, can neither allow nor disallow

access to lands involved in this action. The BLM can only suggest that access be allowed. However, if unknown religious sites or prehistoric sites and burials are discovered during activities associated with this action, additional consultation with the appropriate Native American groups the Louisiana State Historic Preservation Officer (SHPO) will take place.

Recreation/Visual/Noise Resources

Boating, ATV riding, fishing, hiking, bicycling, and hunting are the normal outdoor recreation for this area. Bossier Parish, Louisiana, 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 ownership.

The visual resources found in the project area consist of extensive forested areas, secondary (gravel) roads, existing pipeline corridors, existing well pads, and small ponds/lakes. The existing visual resources in the immediate vicinity of the proposed actions have a rural appearance even though it is within the BAFB with housing, structures, and buildings, and an active air base is within close proximity to this oil field. Recreational use of the BAFB is limited to air force personnel and those with express permission by the base commander to access the area. Existing sources of noise are limited to petroleum development activities, vehicular traffic on existing secondary roads, and air base operations and training nearby.

Minerals and Mineral Development

Premier Natural Resource plans to drill 6 horizontal wells into the Cotton Valley Davis sand in Sligo Field, Bossier Parish, Louisiana. The Davis sand is one of several Cotton Valley sands which are productive in Sligo Field.

The Cotton Valley Group is a series of sands, shales, and limestones which underlie much of southern Arkansas and northern Louisiana. The Cotton Valley in this area is a prolific producer of oil and natural gas. Due to inherently low permeability, however, hydraulic stimulation is required for commercial production.

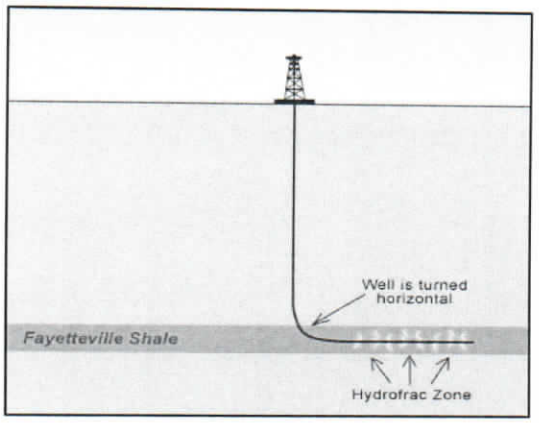
Most all Cotton Valley wells in Sligo Field have been vertically drilled and then completed through perforations over the productive sands in the vertical wellbore. The new wells will be drilled vertically to a certain depth and then steered from the vertical to the horizontal in order to enter and drill within the target formation in a horizontal lateral approximately 3200' in length. In the horizontal lateral, some 4 to 10 times more potentially productive interval is encountered by the wellbore than in a vertical well.

Multistage hydraulic fracturing will be utilized in the completion process in order to commercially develop the natural gas within the Davis Sand. While vertical wells are completed using a single stage fracture treatment, horizontal wells are completed in multiple stages due to the additional productive formation present in the horizontal wellbore. In the Premier wells, the equivalents of 4 to 6 single stage stimulations are planned.

The fracturing process occurs after a well has been drilled through the targeted geologic zone. Steel pipe (casing) of a type approved by the BLM is inserted in the well bore and cemented in place as per State and Federal guidelines. The casing is then perforated within the target zone(s)

and chemically treated water is injected under high pressure into the formation through the perforations. The pressure causes the formation to crack or fracture thus providing pathways for hydrocarbon migration into the wellbore. Materials called proppant (e.g., usually sand or ceramic beads) are injected as part of the fracturing fluid mixture and remain in the target formation to prop open the fractures.

(Diagram of Hydraulic Fracturing of a well)



Energy Policy

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 natural gas from approximate depths of 8,285 feet in Bossier Parish, Louisiana.

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 federal property is utilized for air force training, timber production, recreational hunting, as well as for oil and gas exploration and production.

Soils

The soil types associated with each APD's project area are described according to the USDA Natural Resource Conservation Service (NRCS).

USA Parcel 3-81H-ALT

MeB - Metcalf silt loam, 0 - 2 % slopes, Not Hydric

The Metcalf series consists of deep, somewhat poorly drained, very slowly permeable soils that formed in Pleistocene age loamy marine or alluvial sediments over Tertiary age clayey deposits. Metcalf soils are on broad level, nearly level marine or stream terraces on the Coastal Plain. Slope ranges from 0 to 2 percent. Surface runoff is medium on slopes less than 1 percent, and high on slopes up to 2 percent. Metcalf soils are saturated below a depth of 1.5 to 2.5 feet and above the clayey discontinuity for periods of 8 to 16 weeks from December through April in normal years. The typical surface layer is moderately acid, dark grayish brown silt loam (3 to 8 inches thick). The next layer is strongly acid, light yellowish brown silt loam (0 to 9 inches

thick). The next layer is yellowish brown loam ranging from strongly acid in the upper layers to very strongly acid (0 to 34 inches thick). Below that is strongly acid, light brownish gray loam (3 to 12 inches thick). The next layer is strongly acid, gray silty clay (8 to 30 inches thick). Below that is very strongly acid, light brownish gray silty clay (10 to 30 inches thick).

USA Parcel 3-82H-ALT

GuA - Guyton silt loam, ponded, All Hydric

The Guyton series consists of very deep, poorly drained and very poorly drained, slowly permeable soils that formed in thick loamy sediments. These soils are on Coastal Plain local stream flood plains and in depressional areas on late Pleistocene age terraces. Slopes range from 0 to 1 percent. Typical soil profile for Guyton is a surface layer of grayish brown, strongly acid, silt loam (0 to 8 inches thick). The next layer is strongly acid to very strongly acid, light brownish gray silt loam (11 to 27 inches). The next layer is very strongly acid, gray silty clay loam (8 to 24 inches thick). The next layer (35 to 46 inches) is a very strongly acid, grayish brown silt loam. The next layer (46 to 70 inches) is very strongly acid, gray clay (15 to 45 inches thick). The base layer to 80 inches is a light olive gray sandy clay loam; very strongly acid.

USA Parcel 3-83H-ALT, 84H-ALT, and 85H-ALT

KeB - Keithville very fine sandy loam, 1 - 3 % slopes, Not Hydric

The Keithville series consists of deep, moderately well drained, very slowly permeable soils that formed in loamy over clayey sediment of Tertiary Age. These soils are on broad nearly level or gently sloping uplands of the coastal plains. Slopes range from 1 to 5 percent; runoff is medium. Keithville soils are saturated above the clayey layers to a depth of 2 to 3 feet below the surface for intermittent periods totaling 2 to 6 weeks during December through April. Typically the surface is medium acid, brown very fine sandy loam (2 to 7 inches thick). The next layer is medium acid, yellowish brown, very fine sandy loam (0 to 9 inches thick). Below that is strongly acid, yellowish red loam (5 to 30 inches thick). The next layer is a strongly acid, strong brown loam (0 to 10 inches thick). Below that is a strong brown, strongly acid loam (4 to 10 inches thick). The next layer is a very strongly acid, gray silty clay (8 to 30 inches thick). The next layer is a light brownish gray, very strongly acid silty clay (10 to 30 inches thick).

KoC - Kolin silt loam, 1 to 5 % slopes, Not Hydric

The Kolin series consists of very deep, somewhat poorly drained, very slowly permeable soils that formed in loamy alluvial sediments overlying clayey sediments. These soils are on uplands and terraces of Pleistocene Age. Slopes range from 1 to 8 percent. Somewhat poorly drained; rate of runoff is medium on slopes less than 1 percent, high on slopes less than 5 percent, and very high on slopes of 5 percent or more; moderately slow permeability in the Bt horizon and very slow in the 2Bt horizon. Typically the surface is slightly acid, dark grayish-brown silt loam (3 to 7 inches thick). The next layer is moderately acid, pale brown silt loam (0 to 6 inches thick). The next layer is strongly acid, strong brown silty clay loam (10 to 20 inches). The next layer is a strongly acid, strong brown silty clay loam (5 to 15 inches thick). The next layer is very strongly acid, strong brown silty clay (10 to 20 inches thick). The next layer is slightly acid, red clay (8 to 30 inches thick). The base layer to 80 inches is slightly acid, yellowish red clay.

USA Parcel 3-86H-ALT

SaF - Sacul fine sandy loam, 5 - 15 % slopes, Not Hydric

The Sacul series consists of very deep, moderately well drained, slowly permeable soils that formed in acid, loamy and clayey marine sediments. These soils are on nearly level to steep uplands of the Western and Southern Coastal Plains. Slopes are dominantly 2 to 25 percent but range from 1 to 40 percent. Surface runoff is medium to very high depending on slope. These soils have a seasonally high water table that is within 2 to 4 feet of the soil surface in late winter and spring most years. The typical surface layer is moderately acid, dark grayish brown, very fine sandy loam (1 to 7 inches thick). The next layer is moderately acid brown, very fine sandy loam (3 to 10 inches thick). Below that is a deep layer of clay, clay loam and silty clay loam with the upper layers strongly to very strongly acid, clay ranging from red in the upper layers to variegated red and light brownish gray deeper on the horizon; to extremely acid variegated, light brownish gray and red clay loam, light brownish gray clay loam, light brownish gray, silty clay loam (the Bt horizon ranges from 36 to 70 inches thick). The base layer is extremely acid, light brownish gray clay loam.

KoC - Kolin silt loam, 1 to 5 % slopes, Not Hydric

The Kolin series consists of very deep, somewhat poorly drained, very slowly permeable soils that formed in loamy alluvial sediments overlying clayey sediments. These soils are on uplands and terraces of Pleistocene Age. Slopes range from 1 to 8 percent. Somewhat poorly drained; rate of runoff is medium on slopes less than 1 percent, high on slopes less than 5 percent, and very high on slopes of 5 percent or more; moderately slow permeability in the Bt horizon and very slow in the 2Bt horizon. Typically the surface is slightly acid, dark grayish-brown silt loam (3 to 7 inches thick). The next layer is moderately acid, pale brown silt loam (0 to 6 inches thick). The next layer is strongly acid, strong brown silty clay loam (10 to 20 inches). The next layer is a strongly acid, strong brown silty clay loam (5 to 15 inches thick). The next layer is very strongly acid, strong brown silty clay (10 to 20 inches thick). The next layer is slightly acid, red clay (8 to 30 inches thick). The base layer to 80 inches is slightly acid, yellowish red clay.

Air Resources

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 Louisiana by the Louisiana Department of Environmental Quality (LDEQ). These include carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, total suspended particulate, particulate matter less than 10 microns, and lead. Ambient air quality measurements taken by the LDEQ indicate that air quality for the project area is within standard ranges for safe 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.

Climate

Louisiana has a humid, subtropical climate. It has long, hot, humid summers and short, mild winters. The subtropical characteristics of the state are due in large part to the influence of the Gulf of Mexico, which at its farthest point is no more than 200 miles away.

Rain is frequent throughout the year, although the summer is slightly wetter than the rest of the year. There is a dip in precipitation in October. Southern Louisiana receives far more copious rainfall, especially during the winter months. Summers in Louisiana have high temperatures from mid-June to mid-September averaging 90 °F (32 °C) or more, and overnight lows averaging above 70 °F (22 °C). In the summer, the extreme maximum temperature is much warmer in the north than in the south, with temperatures near the Gulf of Mexico occasionally reaching 100 °F (38 °C), although temperatures above 95 °F (35 °C) are commonplace. In northern Louisiana, the temperatures can reach above 105 °F (41 °C) in the summer. Temperatures are generally mildly warm in the winter in the southern part of the state, with highs around New Orleans, Baton Rouge, the rest of south Louisiana, and the Gulf of Mexico averaging 66 °F (19 °C). The northern part of the state is mildly cool in the winter, with highs averaging 59 °F (15 °C). The overnight lows in the winter average well above freezing throughout the state, with 46 °F (8 °C) the average near the Gulf and an average low of 37 °F (3 °C) in the winter in the northern part of the state. Louisiana gets some cold fronts, which frequently drop the temperatures below 20 °F (−8 °C) in the northern part of the state, but almost never do so in the southern part of the state. Snow is not very common near the Gulf of Mexico, although residents in the northern parts of the state can expect one to three snowfalls per year, with the frequency increasing northwards. Louisiana's highest recorded temperature is 114 °F (46 °C) in Plain Dealing on August 10, 1936, while the coldest recorded temperature is −16 °F (−27 °C) at Minden on February 13, 1899.

Louisiana is often affected by tropical cyclones and is very vulnerable to strikes by major hurricanes, particularly the lowlands around and in the New Orleans area. The unique geography of the region, with the many bayous, marshes and inlets, can result in water damage across a wide area from major hurricanes. The area is also prone to frequent thunderstorms, especially in the summer. The entire state averages over 60 days of thunderstorms a year, more than any other state except Florida. Louisiana averages 27 tornadoes annually. The entire state is vulnerable to a tornado strike, with the extreme southern portion of the state slightly less so than the rest of the state. Tornadoes are more common from January to March in the southern part of the state, and from February through March in the northern part of the state.

Water Resources, Surface/Ground

Surface Water

Topography of the project area indicates that all surface runoff, ephemeral streams, tributaries, and associated wetlands in the project area flow into either the Fifi Bayou or Red Chute Bayou watersheds, before entering the Red River. Fifi Bayou is a tributary of Red Chute Bayou, and is about 10 miles long, in Bossier Parish, Louisiana. The Fifi Bayou begins in north Bossier Parish and traverses in a southerly direction near the towns of Red Chute, Eastwood, and Princeton, Louisiana. Fifi Bayou is dammed just northerly of the project sites, forming Flag Lake. Fifi Bayou, along with its associated wetlands and tributaries, empties into Red Chute Bayou, southward of the AOI.

Red Chute Bayou begins at Bodcau Lake, approximately 17 miles northeast of the project area. Red Chute Bayou is located westerly of the project area and traverses approximately 25 miles southward to its confluence with the Flat River. The Flat River flows southward approximately 6.3 miles to its confluence with Loggy Bayou. Loggy Bayou flows 9.5 miles to its confluence with the Red River. Red Chute Bayou drains a primary watershed for numerous communities within Bossier Parish. Communities that depend on Red Chute Bayou and its tributaries for drainage, irrigation, and recreation include Palmetto, Taylortown, Elm Grove, Cooterville, Bossier City, Benton, Haughton, BAFB, along with various farms, agricultural properties, and rural housing.

Groundwater

The Fifi Bayou and Red Chute Bayou watershed is sub-segment of the Red River River Basin. The Red River basin is comprised of Loggy Bayou and all tributaries, including Red Chute Bayou, Flat River, Cross Bayou, Raft Bayou, and numerous unnamed tributaries. The Red River Basin covers about 94,500 square miles in five states: New Mexico, Oklahoma, Texas, Arkansas, and Louisiana. The Red River flows from eastern New Mexico, across the Texas panhandle, delineates the Texas-Oklahoma boundary, continues through southwestern Arkansas and finally into Louisiana. The Red River is approximately 1,360 miles from its headwaters to its confluence at the Atchafalaya River, which flows approximately 140 miles south to the Atchafalaya Bay and the Gulf of Mexico. The maximum depths of occurrence of freshwater in the Red Chute and Fiji Bayou watershed range from 200 feet above sea level to 100 feet below sea level.

Invasive/Exotic Species

There are a number of non-native species that are considered invasive in Louisiana and are monitored by the Louisiana State University (LSU) Ag Center. The following provides a list of invasive species that can be found in Louisiana:

COMMON NAME	SCIENTIFIC NAME
Alligator weed	*Alternanthera philoxeroides*
Japanese climbing fern	*Lygodium japonicum*
Chinaberry	*Melia azedarach*
Johnson grass	*Sorghum halepense*
Brazilian verain	*Verbena brasiliensis*
Cogon grass	*Imperata cylindrica*
Chinese tallow tree	*Triadica sebifera*
Common salvinia	*Salvinia minima*
Hydrilla	*Hydrilla verticillata*
Water hyacinth	*Eichhorinia crassipes*

Source: LSU, 2004; USDA 2007.

No invasive species are known to occur on the proposed project site.

Special Status Species

Current state and federal lists of rare, threatened, endangered and candidate species were reviewed with regards to potential impacts from construction of the subject project. Infrared aerial photography, the National Resources Conservation Service (NRCS) *Soils Survey for Bossier Parish*, and websites for the U.S. Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries (LDWF) were accessed for this analysis. Habitat in the vicinity of the project site was also analyzed and provides an assessment of potential effects to listed species and environmental resources within the vicinity of the project area. A determination of effects to federal listed species has been provided under each species account below and is presented in **Table 1**. In summary, construction of the proposed project is not likely to adversely affect federal listed species.

Table 1: Summary of Effects

Species	Federal Status	Determination	Rationale
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	No Effect	Outside of range
Interior Least Tern (*Sternula antillarum*)	Endangered	No Effect	Outside of range
Red-cockaded Woodpecker (*Picoides borealis*)	Endangered	May Affect, Not Likely to Adversely Affect	No RCW in the Area
Sprague's Pipit (*Anthus spragueii*)	Candidate	No Effect	No suitable habitat

C.H. Fenstermaker and Associates, LLC (Fenstermaker) conducted a field survey of the proposed project area on July 10, 2013, to assess potential project-related impacts to federal listed threatened, endangered, and candidate species, and natural resources in the project area. None of the species above were observed.

The following species are listed by the USFWS as occurring, or possibly occurring, in Bossier Parish, Louisiana.

Pallid Sturgeon (*Scaphirhynchus albus*) (Endangered)
The pallid sturgeon is a large fish species known from the Mississippi River and its major tributaries, including the Red River. This species is dependent upon a fast flowing current for all phases of its life cycle. Spawning occurs over rock or gravel bottom areas from March to April. The project site is located approximately 6 miles east of the Red River and would have no impact on the Red River or any of its major tributaries. Construction of the proposed project would have no effect on pallid sturgeons.

Interior Least Tern (*Sternula antillarum* = *Sterna antillarum*) (Endangered)
The interior least tern is a migratory shorebird species which breeds, nests, and rears young on non-vegetated areas of sand bars and beaches along the Mississippi River and its major tributaries, including the Red River. Nesting colonies have been found along the Red River in northwestern Louisiana, and the species is extending its breeding habitat further south along the Red River. To avoid adverse effects to this species, the USFWS recommends that no activity be

conducted within 650 feet of a nesting colony; and that any construction activities that would occur within 650 feet of a nesting colony be conducted outside of the nesting season (May 15 – August 31). The project site is located approximately 6 miles east of the Red River and would have no impact on the Red River or any of its major tributaries. Construction of the proposed project would have no effect on interior least terns.

Red-cockaded Woodpecker (*Picoides borealis*) (Endangered)
The red-cockaded woodpecker (RCW) is associated with open, fire maintained, mature pine forest. Optimal habitat is characterized as a broad savanna with a scattered over-story of large pines and a dense groundcover containing a diversity of grass, forb and shrub species. Mid-story vegetation is sparse or absent; mid-story vegetation is sparse or absent; and nesting habitat is considered to be 60 year old (minimum) pine forests. RCW have high potential to occur in mature (60+ years-old) upland pine forests containing large pines (>13 inches dbh) with an open canopy, sparse mid-story, and a dense groundcover containing a diversity of grass, forb and shrub species resulting from a history of periodic fire. The USFWS standard for assessing project impacts to RCW includes a determination of foraging habitat suitability within the area of impact, followed by a progressive stepwise assessment of foraging and nesting habitat suitability within a ½ mile radius of the area of impact. If no suitable foraging or nesting habitat would be impacted by the proposed activities, then no further analysis is required.

The proposed project site encompasses approximately 0.28 acres within a mature even-aged loblolly pine (*Pinus taeda*) tract, with a 60 – 70% canopy cover and a moderately dense (≤60%) understory (to 3 feet) of hardwood saplings, shrubs and vines, and <10% grass/herbaceous groundcover. The pine basal area within that tract is 110 stems per acre, as calculated with a BAF-10 prism. Pine stems in that tract range from 15″ to 18″ dbh. Based on canopy cover of 60 – 70% and the dense brushy understory, the tract lacks the open, scattered canopy, savanna-type structure and bunchgrass groundcover to be considered *high potential* RCW habitat. However, the area does provide potential suitable habitat. Based on the suitability of the area of impact, all tracts of pine with dbh > 15″ and contiguous to the project area were surveyed on foot for RCW cavity starts and cavities. No sign of cavity starts or cavities was observed. The project area was visited several times throughout the day, including a dusk survey. No RCW were observed or heard.

All pine tracts within a ½-mile radius and contiguous to the project site were surveyed to assess habitat suitability and potential occurrence of RCW. No high quality RCW habitat was observed within that area. Potential suitable foraging habitat occurs throughout the area surveyed, although it also lacks the open savanna characteristics that define high quality RCW habitat. In general, pine stands surrounding the area of impact are even-aged, mature pine. Stocking rates and canopy cover vary across the forest. Basal area ranges from 80 to 120 across the area. Stem sizes range from 10″ to 26″ dbh. No RCW, cavities or cavity starts were observed in the area. Barksdale Air Force Base Resource Specialist, Mr. Michael Gibson confirmed that no RCW groups are known to occur on the base (Personal communication June 27, 2013). Because there is suitable potential habitat on the project site and surrounding area, construction of the project may affect, but is not likely to adversely affect RCWs.

Sprague's Pipit (*Anthus spragueii*) (Candidate)
Sprague's pipit is a small, short-distance migrant bird species strictly associated with well-drained, open grasslands and fields, with a preference for native grasses of intermediate height

and thickness; and moderate litter depths for foraging and nesting. Breeding occurs throughout the summer (April – November) on the native prairies of the Great Plains (southern regions of Alberta, Saskatchewan, and Manitoba provinces to Montana, North and South Dakota, and Minnesota). Pipits migrate southward, from September into November, to wintering grounds on the grasslands of Arizona, New Mexico, Texas, Oklahoma, Arkansas, Mississippi, Louisiana, and into Mexico. Threats to this species include destruction and decline of breeding and wintering habitat suitability due to agriculture, overgrazing, and introduction of non-native grasses. Sprague's pipits are likely to be observed in open fields with few to no shrubs or woody vegetation. No suitable habitat for this species occurs within the vicinity of project area. Construction of the proposed project would have no effect on Sprague's pipit.

LDWF Natural Heritage Program (LNHP) - Rare, Threatened, and Endangered Species and Natural Communities of Bossier Parish

The species and natural communities listed below were obtained at LNHP website. (http://www.wlf.louisiana.gov/pdfs/experience/naturalheritage/bossier.pdf)

Plants

The LNHP lists numerous rare plant species for Bossier Parish. Plant species are often listed as rare because of limited range and distribution due to specialized habitat requirements (i.e., soils type, water regime, geological formation). Many species are rare because of surface use conversion from natural habitats to agriculture, forestry, and urban development. One state listed plant species, *Cirsium engelmannii,* was observed in the area of impact.

Animal Species

The LNHP list of animal species for Bossier Parish includes:

Red-cockaded Woodpecker (*Picoides borealis*) and **Interior Least Tern (*Sternula antillarum athalassos*) -** See species accounts above under federal listed species.

Bachman's Sparrow (*Aimophila aestivalis*)
Bachman's sparrows inhabit mixed hardwood-loblolly forests, pine flatwoods, slash pine/post oak forests, pine savannah with an open canopy and a dense ground cover of grasses and forbs, with few shrubs. This species is historically associated with fire maintained habitats Although burn scars indicate that fire has been used to control hardwood species in the midstory and understory, the area has a 60% hardwood sapling/shrub understory with <10% grass/forb groundcover, thereby lacking the open savanna-type community necessary for this species to forage and nest. The field survey was conducted during breeding season. No Bachman's sparrows were observed. The proposed project would not affect this species.

Comanche Harvester Ant (*Pogonomyrmex comanche*)
This rare native ant species is restricted to regions of deep sands that are lightly disturbed, and associated with mature upland pine forests that have an open mid-story and dense groundcover dominated by bunchgrasses and forbs. Although the area has been managed with fire to control hardwood species in the midstory and understory, the area lacks the open savanna-type, grass-dominated groundcover necessary for establishment of this species. Fire ants (*Solenopsis*

invicta), a major competitive species with native ant species were noted in the vicinity of the project area. The proposed project would not affect this species.

Bald Eagle (*Haliaeetus leucocephalus*)
The bald eagle was a federal listed endangered species until 2007 when it was delisted due to recovery. It remains protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. In Louisiana, bald eagles nest between October 31 and May 1, typically within ½ mile of large lakes and water bodies. They commonly nest in large cypress or tupelo trees, but also will nest in pine and oak species. The USFWS *National Bald Eagle Management Guidelines* recommend that clearing/construction activities remain more than 330 feet from an *active* bald eagle nest in areas where there is a visual buffer (i.e., a dense forested zone) between the nest and the proposed activity; and, more than 660 feet from *active* nest trees in areas where there is no visual buffer. A bald eagle nest is located at Flag Lake, approximately 1.5 miles northwesterly from the proposed project area. Surveys for bald eagle nests were conducted concurrently with the RCW survey. No eagle nests were observed. Construction of the proposed well pad expansion would not affect bald eagles.

Western Sand Darter (*Ammocrypta clara*) and **Crystal Darter (*Crystallaria asprella*)** are both fish species. No aquatic habitats would be impacted by the proposed project.

Natural Communities

The LNHP list of Natural Communities in Bossier Parish includes: bottomland hardwood forest, calcareous forest, cypress swamp, cypress-tupelo swamp, forested seep, and hardwood slope forest. The vegetative communities within and surrounding the project area do not exhibit a species composition associated with those listed natural communities.

Migratory Bird Species of Concern
The project area is within the Mississippi Flyway for neo-tropical migratory birds. More than 300 species of birds, including songbirds, raptors, waterfowl, upland game birds, and wading birds migrate through the area. Hardwood, pine and mixed pine-hardwood forests, such as those surrounding the project area provide excellent nesting and stopover habitat for upland game birds, raptors, and songbirds. The nesting season for migratory bird species in the Upper Gulf Coastal Plain is considered to be March 1 – August 1.

Bird species observed in the area: turkey vulture (*Cathartes aura*), black vulture (*Coragyps atratus*), red-shouldered hawk (*Buteo lineatus*), American crow (*Corvus brachyrhynchos*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), red-headed woodpecker (*M. erythrocephalus*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*P. villosus*), indigo bunting (*Passerina cyanea*), blue grosbeak (*Guiraca caerula*), tree swallow (*Tachycineta thalassina*), pine warbler (*Dendroica pinus*), white-eyed vireo (*Vireo griseus*), red-eyed vireo (*Vireo olivaceous*), Carolina wren (*Thryothorus ludovicianus*), northern cardinal (*Cardinalis cardinalis*), tufted titmouse (*Baeolophus bicolor*), and Carolina chickadee (*Parus carolinensis*). Numerous bird species would be expected to occur in the area.

Wildlife and Vegetation

USA Parcel 3-81H-ALT

Generally speaking, the project site is within an upland pine forest which also includes areas of mixed pine-hardwoods, and young pine plantations. That tract is a mature, even-aged stand, with an approximate 60% (pine) canopy cover and a few willow oak (*Quercus phellos*) and red oak (*Q. falcata*) in the midstory. Pine basal area on the tract is 90, with stems between 20" and 25" dbh. Burns scars on trees in the tract indicate that prescribed burning has been used to control hardwood encroachment in the midstory and understory; however, there is a very dense (>80%) shrub/hardwood sapling understory to 4 feet over much of the tract. American beautyberry (*Callicarpa americana*) is the dominant understory species. Other understory species include: willow oak (*Q. phellos*), red oak (*Q. falcata*), post oak (*Q. stellata*), sweet gum (*Liquidambar styraciflua*), red buckeye (*Aesculus hippocastanum*), sweetleaf (*Symplocus tinctoria*), shiny sumac (*Rhus copalinum*), poison ivy (*Rhus toxicodendron*), trumpet creeper (*Campsis radicans*), honeysuckle (*Lonicera japonica*), *Vitus* sp., and *Smilax* sp.

Mammals – Species observed in the vicinity of the project area include: white-tailed deer (*Odocoileus virgianus*), eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), and northern raccoon (*Procyon lotor*). Species expected to occur in the project area include: striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphus virginiana*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), big brown bats (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), evening bat (*Nycticeius humeralis*), as well as various rodents.

Amphibians and Reptiles – Habitat such as that within the proposed project area provides suitable habitat for a number of snake species including rat snake (*Elaphe sp.*), blue runner (*Lampropeltis sp.*), and copperhead (*Agkistrodon contortrix*). Box turtle (*Terrapene carolina*), various skink, toad, and frog species would also be expected to occur in the area.

Invertebrate Species – Numerous invertebrates were observed during the field investigation throughout the general vicinity of the project area: dragonflies, mayflies, grasshoppers, crickets, bee flies, beetles, katydids, leafhoppers, isopods, bees, butterflies and moths. The extensive and varied habitat with nearby water sources provides high quality habitat to support numerous invertebrate species. Invertebrate species provide the forage base for numerous vertebrate and invertebrates, thereby enhancing habitat value in the area. Butterfly species observed: variegated fritillary (*Euptoieta claudia*), pipevine swallowtail (*Battus philenor*), giant swallowtail (*Papilio cresphontes*), black swallowtail (*Papilio polyxenes*), silvery checkerspot (*Chlosyne nycteis*), silverspotted skipper (*Epargyreus clarus*), cloudless sulphur (*Phoebis sennae*), southern dogface (*Zerene cesonia*), and gray hairstreak (*Strymon melinus*).

USA Parcel 3-82H-ALT

The proposed project area would be within a mixed hardwood-pine tract. Runoff from the site drains southeasterly into Marden Lake Bayou. The project site is located within an uneven-aged, closed canopy, mixed hardwood-pine tract. Canopy and midstory species include: willow oak (*Quercus phellos*), sweet gum (*Liquidambar styraciflua*), Eastern hophornbeam (*Ostrya virginiana*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), water oak (*Q. nigra*), winged elm (*Ulmus alata*), red buckeye (*Aesculus hippocastanum*), sweetleaf (*Symplocus tinctoria*), and devil's walking stick (*Aralia spinosa*). Understory and groundcover species

throughout the area include: American beautyberry (*Callicarpa americana*), poison ivy (*Rhus toxicodendron*), trumpet creeper (*Campsis radicans*), honeysuckle (*Lonicera japonica*), *Vitus* sp., and *Smilax sp.*

Mammals – Species observed in the vicinity of the project area include: gray squirrel (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virgianus*), eastern cottontail (*Sylvilagus floridanus*), and northern raccoon (*Procyon lotor*). Species expected to occur in the project area include: striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphus virginiana*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*) and bobcat (*Lynx rufus*), as well as various rodents.

Amphibians and Reptiles –Habitat such as that within the proposed project area provides suitable habitat for a number of snake species including rat snake (*Elaphe sp.*), blue runner (*Lampropeltis sp.*), and copperhead (*Agkistrodon contortrix*). Box turtle (*Terrapene carolina*), various skink, toad, and frog species would also be expected to occur in the area.

Invertebrate Species – Numerous invertebrates were observed during the field investigation throughout the general vicinity of the project area: dragonflies, mayflies, grasshoppers, crickets, bee flies, beetles, katydids, leafhoppers, isopods, bees, butterflies and moths. The extensive and varied habitat with nearby water sources provides high quality habitat to support numerous invertebrate species. Invertebrate species provide the forage base for numerous vertebrate and invertebrates, thereby enhancing habitat value in the area. Butterfly species observed: pipevine swallowtail (*Battus philenor*), giant swallowtail (*Papilio cresphontes*), black swallowtail (*Papilio polyxenes*), silvery checkerspot (*Chlosyne nycteis*), cloudless sulphur (*Phoebis sennae*), and southern dogface (*Zerene cesonia*).

USA Parcel 3-83H-ALT, 84H-ALT, and 85H-ALT

The project entails the drilling of three wells utilizing an existing, previously authorized access road and drill pad. The project site is located within a hardwood stand situated at the interface of two silvicultural tracts. To the north is a mature (> 40 years) pine/mixed pine-hardwoods tract. A dense young (<10 year old) loblolly pine tract is to the south.

The pine stand surrounding the area of impact is a dense, closed canopy stand with a pine basal area of 180. Pine trees in that area are uneven aged, with diameters ranging from 15 inches to 22 inches. Other canopy and mid-story species within, and in areas surrounding the area of impact are: sweet gum (*Liquidambar styraciflua*), eastern hophornbeam (*Ostrya virginiana*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), water oak (*Q. nigra*), winged elm (*Ulmus alata*), red buckeye (*Aesculus hippocastanum*), sweetleaf (*Symplocus tinctoria*), and devil's walking stick (*Aralia spinosa*). Understory and groundcover species throughout the area include: American beautyberry (*Callicarpa americana*), poison ivy (*Rhus toxicodendron*), trumpet creeper (*Campsis radicans*), honeysuckle (*Lonicera japonica*), *Vitus* spp., *Vigna* sp., and *Smilax spp.*

Mammals – Species observed in the project area include: gray squirrel (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virgianus*), eastern cottontail (*Sylvilagus floridanus*), and northern raccoon (*Procyon lotor*). Species expected to occur in the project area include: striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphus virginiana*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*) and bobcat (*Lynx rufus*), as well as various rodents.

Amphibians and Reptiles –Habitat such as that within the proposed project area provides suitable habitat for a number of snake species including rat snake (*Elaphe sp.*), blue runner (*Lampropeltis sp.*), and copperhead (*Agkistrodon contortrix*). Box turtle (*Terrapene carolina*), various skink, toad, and frog species would also be expected to occur in the area.

Invertebrate Species – Numerous invertebrates were observed during the field investigation throughout the general vicinity of the project area: dragonflies, mayflies, grasshoppers, crickets, bee flies, beetles, katydids, leafhoppers, isopods, bees, butterflies and moths. The extensive and varied habitat with nearby water sources provides high quality habitat to support numerous invertebrate species. Invertebrate species provide the forage base for numerous other vertebrate and invertebrates, thereby enhancing habitat value in the area. Butterfly species observed: eastern tiger swallowtail (*Papilio glaucus*), pipevine swallowtail (*Battus philenor*), giantswallowtail (*Papilio cresphontes*), black swallowtail (*Papilio polyxenes*), silvery checkerspot (*Chlosyne nycteis*), silverspotted skipper (*Epargyreus clarus*), cloudless sulphur (*Phoebis sennae*), and gray hairstreak (*Strymon melinus*).

USA Parcel 3-86H-ALT

The surrounding habitat is a mature, even-aged stand, with an approximate 60% canopy cover and few water oak (*Quercus nigra*), sweet gum (*Liquidambar styraciflua*), and black cherry (*Prunus serotina*) in the midstory. Pine basal area on the tract is 110, with stems between 15" and 18" dbh. Burn scars on trees in the tract indicate that prescribed burning has been used to control hardwood species; however, there is a moderately dense (≤60%) hardwood sapling/shrub understory to 3 feet throughout the area. Understory species include: American beautyberry (*Callicarpa americana*), Virginia creeper (*Parthenocissus quinquefolia*), pepper vine (*Ampelopsis arborea*), wax myrtle (*Myrica cerifera*), goldenrod (*Solidago* sp.), winged elm (*Ulmus alata*), red oak (*Q. falcata*), eastern hophornbeam (*Ostrya virginiana*), wild grape (*Vitis rotundifolia*), red maple (*Acer rubrum*), *Rubus* sp., soft leaf yucca (*Yucca* sp.), *Chasmanthium sessiliflorum,* shiny sumac (*Rhus copalinum*), poison ivy (*Rhus toxicodendron*), *Rudbeckia* sp., dogfennel (*Eupatorium capillifolium*), ironweed (*Vernonia texana*), *Smilax* sp., and trumpet creeper (*Campsis radicans*).

Mammals – Species observed in the vicinity of the project area include: white-tailed deer (*Odocoileus virgianus*), eastern cottontail (*Sylvilagus floridanus*), and gray squirrel (*Sciurus carolinensis*). Species expected to occur in the project area include: striped skunk (*Mephitis mephitis*), northern raccoon (*Procyon lotor*) Virginia opossum (*Didelphus virginiana*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), evening bat (*Nycticeius humeralis*), as well as various rodents.

Amphibians and Reptiles – Box turtle (*Terrapene carolina*) and green anole (*Anolis carolinensis*) were observed in the project area. Other species expected to occur in habitat such as that within the proposed project area include rat snake (*Elaphe sp.*), blue runner (*Lampropeltis sp.*), copperhead (*Agkistrodon contortrix*), skink, toad, and frog.

Invertebrate Species – Numerous invertebrates were observed during the field investigation throughout the general vicinity of the project area: dragonflies, mayflies, grasshoppers, crickets, bee flies, beetles, katydids, leafhoppers, isopods, bees, butterflies and moths. The extensive and varied habitat with nearby water sources provides high quality habitat to support numerous

invertebrate species. Invertebrate species provide the forage base for numerous vertebrate and invertebrates, thereby enhancing habitat value in the area. Butterfly species observed: southern dogface (*Zerene cesonia*), cloudless sulphur (*Phoebis sennae*), giant swallowtail (*Papilio cresphontes*), black swallowtail (*Papilio polyxenes*), variegated fritillary (*Euptoieta claudia*), and silverspotted skipper (*Epargyreus clarus*).

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 Resources, Native American Religious Concerns, Recreation, Visual Resources, Minerals and Mineral Development, Energy Policy , Surface Protection, Hazardous Material, Soils, Air Resources, Climate, Water Resources, Invasive & Non-Native Spp., Wildlife/Botanical Spp., and Threatened, Endangered, and Special Status Species.

Environmental Justice

The project area is within a rural non-residential area. No adverse human health and environmental effects are anticipated that would encompass or affect minority and low-income populations in the area surrounding the pipeline sites, as discussed in this EA.

Cultural Resources:

Impacts to known cultural resources will not occur with approval of this proposed action. However, ground disturbing activities with the development of petroleum reserves can destroy buried sites which are potentially eligible for listing on the National Register of Historic Places. A stipulation covering the possibility of an inadvertent discovery should be included. By following the requirements of this type of stipulation, impacts to any unknown significant site should be minimized.

Native American Religious Concerns:

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

Recreation/Visual/Noise Resources

The proposed APDs are not near areas used for recreational purposes other than hunting or hiking by air force personnel authorized to be within the area. This site is more than 3 miles from any residential areas. Recreational prohibitions and/or cessation for areas within and surrounding the proposed construction corridors would be short-term, direct impacts during the construction phase of this project only. Recreational activities in the area may resume as normal, as soon as construction activities are completed and all equipment has been removed from the area, and BAFB personnel have inspected the area and confirmed that it has been adequately

reclaimed and cleared of construction-related debris, materials, and trash. Long-term impacts are not expected. Cumulative impacts to recreation in this area would not occur.

Noise generation from pipeline construction and/or operations, would be associated with vehicle movements and the operation of construction equipment. Since there are no residential areas near the proposed AOI, and access to the Sligo Field is limited to military and other authorized personnel, impacts from noise on people are expected to be negligible. Impacts from noise on wildlife species inhabiting the areas are expected to be minimal and of occasional, short duration in case of routine inspections and required maintenance onsite.

Minerals and Mineral Development

The proposed wells are to be alternate wells for existing Cotton Valley units productive in vertically drilled wells. True vertical depth (TVD) of the proposed wells is 8,200' to 8,500'. The approximate lateral distance will be 3,200'. The total measured depth (MD) is projected to be approximately 12.900' as per APD filing.

Cotton Valley wells require stimulation in order to be commercially productive. The hydraulic stimulation will occur through perforations over most of the lateral length. Fracking is done in multiple stages and involves high volumes of sand and water. It is estimated that approximately 38,000 barrels of water (approximately 1.6 million gallons) and 1.2 million pounds of will be used in the completion of each well.

Proper cementing and casing will be required and reviewed by BLM and the State of Louisiana to isolate and protect fresh-water zones during the drilling and completion process. This includes approval of the type of equipment used downhole, cementing of the surface casing, and, eventually, proper abandonment of the well.

Water used for drilling and completion of the wells will acquired from a private and/or company owned, permitted pond. Water handling and storing will be by water hauler truck. After final hydraulic fracturing treatment is complete the resulting flowback and produced water will be contained in holding tanks until it is disposed of properly or reused in another drilling operation. The operator and contractors shall ensure that all use, production, storage, transportation and disposal of produced water associated with the drilling, completion and production of this well will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines.

Water quality may be affected by indirect effects at a later time or further distance from the triggering management activity. Indirect effects are from management activities that do not have a direct connection to a stream course or water supply. The proposed activities where ground disturbance would occur have potential to adversely affect water quality by increasing sediment levels and changing the chemical and biological characteristics of the water quality. However; impacts from this project are not expected to contribute to degradation of the current water quality.

Energy Policy

Approving Premier Natural Resources, LLC 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 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.

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.

Operations will utilize a "closed-loop" system. A pit will be needed for solid waste but all fluid waste will be contained in large, metal tanks. Any waste fluid will be stored in the metal tanks until trucked to salt water disposal (SWD) well nearby for disposal. Cuttings and other solid waste will be hauled off to an approved treatment facility. 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 BAFB SUCOAs and any additional BLM SUCOAs to minimize the loss of soil productivity. This would also prevent an increase of siltation into drainages or streams from run-off. 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 Resources

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 during drilling/completion 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.

Climate

The assessment of greenhouse gas (GHG) emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the proposed action on climate – that is, while BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. The BLM does not have the ability to associate a BLM's action contributing to climate change with impacts in any particular area and the science to be able to do so is not yet available. The inconsistency in results of scientific models used to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level and determining the significance of any discrete amount of GHG emissions is beyond the limits of existing science. Because of the vast number of GHG sources worldwide, it's impossible to determine the degree of impact of one project's emissions on global climate change. However, we can acknowledge that certain activities may contribute to climate change through GHG emissions. When further information on the impacts to climate change is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate.

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. Premier Natural Resources, LLC informed BLM and is stated in each APD that all drilling fluids will be contained in tanks due to Premier Natural Resources, LLC using a "closed-loop" system and those tanks will be trucked off location and the fluid disposed of at an appropriate facility or approved SWD well. The direct contamination of underground sources of drinking water from fractures created by hydraulic fracturing would require hydrofractures to propagate several thousands of feet beyond the upward boundary of the target formation(s) through many layers of rock. The difference between the base of treatable water and the top of the target formation for this well site is over 5,000 feet and extremely unlikely that the fractures would ever reach fresh water zones to potentially contaminate freshwater aquifers. Typical flowback from hydraulic fracturing will be processed and reused. 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 from the surrounding area over time).

NRCS (2002) provides useful information for critical area planting. A list of species suitable for restoration after drilling would include some or all of the following species (i.e., a mixture of both cool- and warm-season species, both introduced and native species, and annual and

perennial species): orchardgrass (annual), foxtail millet (annual), browntop millet (annual), Japanese millet (annual), Kobe lespedeza (annual), Eastern gamagrass (perennial), and switchgrass (perennial). Annual species would be replaced by native perennial species, including woody species recruited from the surrounding area, with the passage of time.

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. The project site is located approximately 8 miles east of the Red River and would have no impact on the Red River or any of its major tributaries. As a result, BLM has determined that construction of the proposed project would have no effect on the pallid sturgeon or interior least tern. The proposed project site and surrounding area does provide potential suitable habitat for the RCW however, no RCWs are known to occur on the base and none were observed during surveys. As a result, the proposed project may affect, but is not likely to adversely affect the RCW. There is no suitable habitat for Sprague's pipit. Therefore, BLM has determined that the proposed project will have no effect on the Sprague's pipit.

Informal consultation occurred with FWS on October 24, 2013. FWS concurred with our determination of no effect for the pallid sturgeon, interior least tern and Sprague's pipit and may affect, but is not likely to adversely affect the RCW. However, due to changes in species habitats, habits and our knowledge thereof, SUCOAs regarding rare species apply to this proposal.

Wildlife and Vegetation

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 and BAFB's plans for the site after the last well on each well pad location is plugged. Minimal affects for wildlife and vegetation will be associated with the proposed well site.

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 or allow continued development of the federal government's natural gas resources.

Cumulative Impacts

The proposed project of Premier Natural Resources is the drilling of six additional gas wells on BAFB utilizing existing well pad as much as possible or completely. Those gas wells will create approximately 0.54 acres of new disturbance. The cumulative impacts from the proposed project are negligible since new disturbance from oil and gas development is minimal and the proposed APDs will utilize existing well sites as much as possible.

Oil and Gas development on Barksdale Air Force Base (BAFB) is prevalent and has been for more than 50 years. Over time, about 500 wells have been drilled. About half of these well sites have been reclaimed on BAFB already. Approximately, 257 wells are active or shut-in on BAFB. Oil and Gas drilling takes place on BAFB's eastern half, also known as the "East Reservation". The East Reservation oil and gas leases are approximately 12,000 acres more or less. Current production disturbance is estimated to be approximately 1,200 to 1,300 acres for well pads, facilities, access roads, and pipelines. The estimated acreage of disturbance is an estimate counting for the most disturbances possible but does not reflect the true surface disturbance since there are other variables that can add or subtract from that estimate due to oil and gas production needs. Oil and Gas surface disturbance for the East Reservation is about 10.5 percent using estimated figures. Additionally, there are cumulative impacts from the Air Force due to military operations and training needs on the East Reservation. There is potential for additional pipelines, including the proposed pipeline project in this EA, depending on Premier Natural Resources' future plans but oil and gas development for BAFB has been in decline since 2009 and some oil and gas wells, facilities, and/or pipelines on BAFB have been plugged with their locations being restored. Once wells, facilities, and pipelines are no longer needed, those areas will be restored to BAFB's specifications.

Preparers and Reviewers

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Physical Scientist (Lead)

Prepared by: Date: 10/24/14
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Archaeologist/Tribal Coordinator

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Reviewed by: Duane Winters Date: 10/24/14
Duane Winters
Resource Supervisor

Reviewed by: Elizabeth Ivy Date: 10/24/14
Elizabeth Ivy
Minerals Supervisor

APPENDIX A

Maps

Proposed Federal Oil & Gas Wells
Company: Premier Natural Resources
Well Names: USA Parcel 3 #81, #82, #83, #84, #85, and #86 H-Alt
Bossier Parish, Louisiana
T. 17N, R. 12W, Sec. 1, 2, and 3; Louisiana Meridian

Legend

⊙ Proposed Well Locations

0 1,000 2,000 4,000 6,000 8,000 Feet

1:24,000

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

N

This map contains portions of the following USGS 1:24,000 Topographic Ouadrangle: Sligo

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 (SUCOA)

Sections 1, 2, and 3, T. 17 N., R. 12 W., Louisiana Meridian, Bossier Parish, Louisiana on BLM Lease LABLMA-54491

Wells: USA Parcel 3 #81H-Alt through USA Parcel 3 #86H-Alt

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 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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)

10. 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.

11. 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.

12. 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. BAFB and BLM will inspect those reclamation actions submitted by the operator to ensure that the operator has met all reclamation goals of BAFB. A Notice of Intent to Abandon and a Subsequent Report of Abandonment must be submitted for abandonment approval by BLM. Final Abandonment Notice (FAN) will be filed at the end awaiting BAFB's approval of final reclamation. After BAFB's approval of final reclamation, BLM will approve the FAN and then the operator can be relinquished of its obligations and responsibilities to the well site.

DEPARTMENT OF THE AIR FORCE

2D CIVIL ENGINEER SQUADRON (AFGSC)
BARKSDALE AIR FORCE BASE LOUISIANA

MEMORANDUM FOR DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

FROM: 2 CES/CC
334 Davis Ave West, Ste 200
Barksdale AFB LA 71110-2078

SUBJECT: Permit to Drill Gas Well, Premier Natural Resources USA (P3) 83 ALT, Surface Management and Environmental Requirements

I, on behalf of Barksdale Air Force Base (Grantor), approve the application of Premier Natural Resources (Grantee) to drill gas well USA 83 ALT on Barksdale Air Force Base's (BAFB) East Reservation, subject to the following terms and conditions:

With regard to oil and gas development on the east reservation (reference – Surface Operating Standards for Oil and Gas Development "Gold Book"), the Grantee agrees to the following:

1. Locations selected for well sites and oilfield infrastructure will be planned so as to minimize long-term disruption of the surface resources and existing uses, and to promote successful reclamation. In addition, design and construction techniques and other practices will be employed that will minimize surface disturbance and the associated effects of proposed operations and maintain the reclamation potential of the site.

2. During well pad construction or alteration, all surface soil materials (topsoil) will be removed from the entire cut and fill area and temporarily stockpiled for reuse during interim and final reclamation. Topsoil will be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials will not be placed on top of topsoil material at any point in the operation. Stockpiles will be located and protected so that erosion is minimized and reclamation potential is maximized.

3. All commercial timber cleared for this permit will be harvested and removed from the site. Any tree located outside this permit area that may present a hazard to the new or existing facilities shall be pruned or felled as approved by Natural Resources. Logging slash or any tree debris shall not be pushed into the adjacent forest. If this happens the Grantee will pay double the value of trees damaged or impacted from this violation. The Grantee will reimburse the United States Air Force for forest loss on the trunk line route. The total forest and habitat loss reimbursement totals $1,330.61 (Atch 1). For accounting purposes, it is necessary that the Grantee make this payment with two (2) checks, one issued for $855.61 to account number 57F3875.0004 31FF 667100 and one issued for $475.00 to account number 575095 31SA 667100. Both checks are to be made payable to the U S Treasury. Mail the checks to: 2 CES/CEIEA (Natural Resources Office), c/o Natural Resources Manager, 6141 Range Rd., Barksdale AFB, LA 71110-2927.

4. Reserve pits will not be constructed in natural watercourses. Watercourses include lake beds, gullies, draws, streambeds, washes, or channels that are delineated on a 1:24,000 USGS quadrangle map or have a hydrologic connection to streams, rivers, or lakes. The Grantee will avoid constructing reserve pits in areas of shallow groundwater.

5. Reserve pits shall be designed to contain all anticipated drilling muds, cuttings, fracture fluids, and precipitation while maintaining at least 2 feet of freeboard. Pits may be lined with synthetic liners or other materials such as bentonite or clay.

6. To prevent contamination of ground water and soils or to conserve water, the Grantee shall use a closed-loop drilling system or line reserve pits with an impermeable liner, when it is anticipated that pits will contain moderate or high levels of hydrocarbons and chloride, or pits are located in areas of shallow groundwater or porous soils over fractured bedrock aquifers. If a closed loop system is used, upon completion of the well, hard rocked surfaces constructed for drilling and frac tanks, no longer needed for production, shall be reclaimed as noted below.

7. Depending on the proposed contents of the pit and sensitivity of the environment, the Grantor may require a leak detection system or the use of self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas.

8. Reclamation is required of any surface previously disturbed that is not necessary for continued production operations. Earthwork for interim and final reclamation generally must be completed within 6 months of well completion or plugging (weather permitting). Reclamation measures will begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

9. During the life of the development, all disturbed areas not needed for active support of production operations shall undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses. At final abandonment, well locations, power/pipelines, production facilities, and access roads must undergo final reclamation so that the character and productivity of the land and water are restored.

10. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation. Topsoil is respread over areas not needed for all-weather operations. When practical, the operator will respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

11. To achieve final reclamation of a recently drilled dry hole, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil redistributed, and the site revegetated. To achieve final reclamation of a formerly producing well, all topsoil and vegetation must be restripped from all portions of the old well site that were not previously reshaped to blend with the surrounding contour. All disturbed areas are then recontoured back to the original contour or a contour that blends with the surrounding landform, topsoil is redistributed, and the site revegetated. In recontouring areas that have been surfaced with gravel, soil cement, or similar materials, the material must be removed from the well location.

12. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The site will be prepared to provide a seedbed for reestablishment of desirable vegetation. Site preparation will include ripping, scarifying, dozer track-walking, mulching, fertilizing, seeding, and planting.

13. The operator must achieve the short-term stability, visual, hydrological, and productivity objectives of the surface management agency and take the steps necessary to ensure that long-term objectives will be reached through natural processes.

14. At abandonment, oilfield access roads must be reclaimed by the Grantee unless requested

otherwise by the Grantor. Final reclamation will include removal of road base and surface materials, recontouring the road back to the original contour, seeding, controlling noxious weeds, and other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, placing water bars, mulching, redistributing woody debris, and barricading.

15. Reclamation will be judged successful when a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and to re-establish wildlife habitat or forage production. The site must be free of State- or county-listed noxious weeds, oil field debris, contaminated soil, and equipment.

16. Other facilities and areas of surface disturbance associated with Federal oil and gas lease development, including water impoundments, power/pipelines, metering buildings, compression facilities, and tank batteries must be removed and reclaimed in accordance with the standards identified previously. In addition to the provisions stated above, the following apply:

a. The Barksdale Natural Resources Manager will notify the Bureau of Land Management (BLM) when clearance to proceed is granted. The Grantee will comply with all BAFB security requirements including registration of vehicles and personnel. During 24-hour drilling and well completion operations the Grantee may be required to maintain a 24-hour security guard on the base perimeter gate being used by the Grantee's personnel.

b. The provisions contained in this permit supplement the provisions of any existing lease agreement between the parties. The provisions contained in this permit apply to any person or persons who are agents, employees, or invitees of the Grantee. The provisions further apply to independent contractors or sub-contractors and its agents, employees, and invitees who conduct business with the Grantee on, in, or above the legal boundaries of BAFB, Louisiana. Further, whether or not signed by Grantee, the provisions of this permit shall be binding and enforceable upon Grantee, and Grantee's preparation for or drilling of the gas wells contemplated by this permit shall be conclusive evidence of Grantee's acceptance of the terms and provisions of this permit.

c. The use, operation, and occupation of the premises shall be without cost or expense to the Department of the Air Force, and is subject to the general supervision and control of 2 BW/CC. In accepting this permit, Grantee recognizes the installation serves the national defense and that Grantor will not permit activities that interfere with the installation's military mission. This installation is a closed military installation and is subject to the provisions of the Internal Security Act of 1950, 50 U.S.C. §797. Access to the installation is subject to the control of its commanding officer and is governed by such regulations and orders as have been lawfully promulgated or approved by the Secretary of Defense or by any designated military commander. Any access granted to Grantee, its employees, agents, contractors, and invitees is subject to such regulations and orders. This permit is subject to all regulations and orders currently promulgated or which may be promulgated by lawful authority as well as all other conditions contained in this permit. Violation of any such regulations, orders, or conditions may result in the termination of this permit. Such regulations and orders may, by way of example and not by way of limitation, include restrictions on who may enter, how many may enter at any one time, when they may enter, and what areas of the installation they may visit. Grantee is responsible for the actions of its employees, agents, contractors, and invitees while on the installation and acting under this permit; any liability of the Grantor resulting from the actions of Grantee's employees, agents, contractors, and invitees shall be the responsibility of Grantee and Grantee shall hold Grantor harmless for any such liability and indemnify it.

d. This permit does not guarantee that the installation will remain open or active at its current level.

e. The Grantee must comply with the National Environmental Policy Act of 1969 (NEPA), as well as all regulations. The Grantee will be responsible for preparing and obtaining all permits required by all

environmental agencies and regulations. Proof of compliance will be made to the BAFB Natural Resources Manager or the Installation Management Flight Chief. All notices of violation, administrative orders, fines, or special assessments resulting from any failure to comply with any applicable statute or regulation will remain the sole responsibility of the Grantee. All civil and criminal penalties resulting from violations of any environmental law or regulation will be paid by the Grantee. (This shall include any costs for restoration or rehabilitation of the environment assessed against the Grantee or lease owner by an environmental agency or court of law.)

f. Grantee must comply with all applicable laws on occupational safety and health, the handling and storage of hazardous materials, and the proper disposal of solid and hazardous wastes generated by its activities. Grantee will not bring solid or hazardous waste upon the premises. Grantee will also be responsible for the cost of proper disposal of solid and hazardous wastes generated by its activities under this permit.

g. Grantee shall comply with all applicable environmental laws and requirements and in particular those requirements concerning the protection and enhancement of environmental quality, natural resources, pollution control and abatement, safe drinking water, and solid and hazardous waste. Responsibility for compliance with such requirements rests exclusively with Grantee.

h. The Grantee agrees to provide timely notification within 10 days, as required by the applicable environmental laws or regulations to the applicable environmental agency and the Natural Resources Manager at BAFB, Louisiana, in the event that its operations violate or fail to comply with an environmental law, order, rule, or regulation.

i. Grantee shall treat, at Grantee's sole expense, all exposed 30%+ slopes on and around the pad with a hydromulch, containing native grass seed, during and after drilling operations to minimize erosion. Further erosion control at drainage sites or areas that have the potential for high water energy may require additional measures such as silt screens, rip rap, and or hay bales to prevent rapid loss of soils. Erosion control measures must be approved by the BAFB Natural Resources Manager and maintained throughout the life of the well.

j. Grantee shall ensure that all exposed soil on the well site, pipelines, and road right-of-way not covered by gravel or road surface shall be fertilized and planted immediately (10 days) after the well pad is complete. Until disturbed areas are successfully revegetated, exposed soil shall be seeded according to the following planting rates and schedule: 15 lbs/acre of quality Bermuda grass seed (April 1 – Aug 31) 30 lbs/acre of quality annual rye grass (Sept 1- March 30). Fertilize the planting of Bermuda and/or rye grass @ the rate of 500 pounds of 12-12-12 fertilizer per acre with a repeat application two to three months after planting. Following fertilization and seeding, grantee shall cover seed lightly by dragging area with a chain and mulch with 1 1/2 tons of hay mulch/acre or use an equivalent hydromulch or geotextile operation for erosion control. An Air Force inspector must be on site at time of planting and fertilizing. Any area that fails to establish vegetative cover after one month shall be replanted and fertilized immediately at the above listed rate. After well completion and at the earliest opportunity between December – February, the pit area shall be planted with advanced generation genetically superior loblolly pine seedlings. The grantee shall plant the pine seedlings on 10 X 10 foot spacing. The grantee may wait one year or until the following planting season (December – February) after the pit is closed to replant with advanced generation loblolly pine seedlings to ensure that the pit has settled and all sinkholes or erosion problems have been remediated prior to replanting.

k. Grantee will apply sufficient amounts of crushed concrete or SB-2 rock to lease access roads used to move drilling equipment to the location. Prior to drilling operations the grantee will properly grade and apply a minimum of 500 tons of crushed concrete or SB-2 rock to lease road sections as directed by BAFB Forester. Grantee will deliver weight tickets to the BAFB Forester. The Grantee will install culvert corrals at road intersections as directed by the Base Forester. Grantee will protect roads,

prevent washouts and minimize silting of adjacent waters in these areas. The Grantee will adequately maintain access roads during the drilling operations and through the life of the well in accordance with directions of Barksdale AFB Natural Resources Manager or his designee.

l. Base roads may be used by the Grantee subject to the paramount right control by the Air Force. At such time as the Air Force determines that use by the Grantee has caused damage to or increased the maintenance on these roads, the Air Force and the Grantee shall agree upon appropriate compensation as a condition for continued use. If no agreement can be reached, the Air Force's determination of appropriate compensation shall be conclusive. Vehicle access to an area not serviced by an existing road is subject to approval by the BAFB Natural Resources Manager or the Asset Management Flight Chief.

m. The location of the proposed drill site falls within the exclusive jurisdiction of the federal government. Any person or persons within the jurisdiction are subject to all civil and criminal regulations enforceable by the federal government through its duly authorized agents.

n. Grantor shall not be responsible for damage to property or injuries to persons which may arise from, or be attributable or incident to, the condition or state of repair of the Premises, or its use and occupation by Grantee. Grantee agrees that it assumes all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, invitees, or others, by reason of or incident to Grantee's possession and/or use of the Premises, and the activities conducted under this Permit. Grantee shall, at its expense, settle and pay any claims arising out of the use and occupancy of the Premises and retain any recoveries from such claims; provided, however, that Grantor or another agency of the Government may, as a matter of its internal policy, assume responsibility for certain claims of that agency's personnel while assigned or detailed to the Grantee, or otherwise present on the premises.

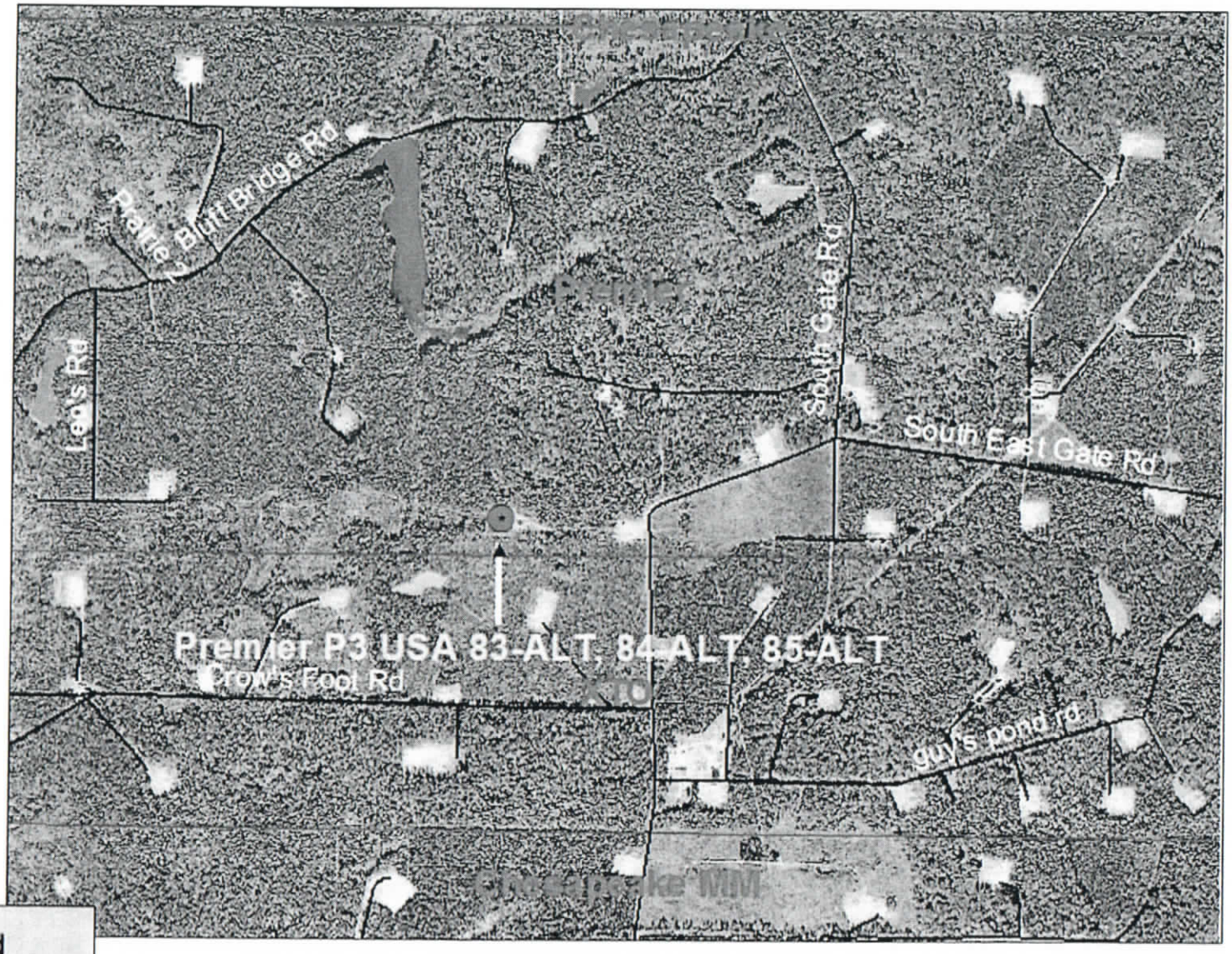
o. Grantee shall, at all times, protect, repair, and maintain the premises in good order and condition at its own expense and without cost or expense to Grantor. Any property on the premises damaged or destroyed by Grantee incident to the exercise of the privileges herein granted should be promptly repaired or replaced by Grantee to the satisfaction of Grantor. Any interference with the use of or damage to property under control of the Department of the Air Force incident to the exercise of the privileges herein granted shall be promptly corrected by Grantee to the satisfaction of Grantor. If Grantee fails to promptly repair or replace any such property, said officer may repair or replace such property and Grantee shall be liable for the costs of such repair or replacement. Any damage, such as rutting, to installation roads due to Grantee's use of the premises shall be repaired immediately to the satisfaction of Grantor by Grantee, at Grantee's sole expense.

p. The Grantee shall routinely inspect and maintain the drill site area in a neat and orderly fashion. Old material not necessary for site stabilization shall be removed. This includes old silt fence, t-post, and wire mesh fence previously installed around the perimeter of the existing location. Upon completion or abandonment of any well or drilling site, or on termination of this permit, Grantee shall remove its property therefrom, and restore the premises to their original condition. Grantor may, in its sole and absolute discretion, consent to Grantee abandoning all or part of its property and improvements on the Installation. Restoration of the premises, for purposes of this condition, shall include any remedial or removal action necessitated by the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or the Resource Conservation and Recovery Act or similar state laws applicable to the premises. If Grantee fails to perform the required removal and restoration in a timely manner, Grantor may perform the required removal and restoration in Grantee's place and Grantee shall reimburse Grantor its costs of removal and restoration.

Steven S. Vincent

STEVEN S. VINCENT, GS-14, DAF
Deputy Base Civil Engineer

Premier P3, USA 83-ALT, 84-ALT, 85-ALT Location Map
Sligo Field, Section 2, T17N, R12W



Legend

Gas Wells

Roads

0 0.25 0.5 1 Miles

Map Created 2-4-2014
BAFB Natural Resources

Well pad: **Premier P3 83-alt**
Date: **2/4/2014**
Acreage: **0.19**

Louisiana Timber Stumpage Prices
4th Quarter 2014

	Volume bf	Value/mbf	
Pine Sawtimber	943	$267.92	$252.65
Hardwood Saw.	348	$269.23	$93.69
	Volume cd		
Pine pulp	0.309	$24.91	$7.70
Hardwood pulp	1.143	$23.25	$26.57
			$380.61

Land Use	Acreage	$/ac/yr	years	Value ($)
Forestry	0.19	$100.00	25	$475.00
Regeneration	Acreage	$/ac/yr	years	
(if applicable)	0.19	100	0	$0.00
Wildlife	0.19	$100.00	25	$475.00
			Total	
				$1,330.61

Forestry Check **$855.61**
Wildlife Check **$475.00**

	Location (pad)	Road/ROW	Total
Acres:		0.19	0.19

	New Disturbance
Acres:	0.19

DEPARTMENT OF THE AIR FORCE

2D CIVIL ENGINEER SQUADRON (AFGSC)
BARKSDALE AIR FORCE BASE LOUISIANA

MEMORANDUM FOR DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

FROM: 2 CES/CC
334 Davis Ave West, Ste 200
Barksdale AFB LA 71110-2078

SUBJECT: Permit to Drill Gas Well, Premier Natural Resources USA (P3) 84 ALT, Surface Management and Environmental Requirements

I, on behalf of Barksdale Air Force Base (Grantor), approve the application of Premier Natural Resources (Grantee) to drill gas well USA 84 ALT on Barksdale Air Force Base's (BAFB) East Reservation, subject to the following terms and conditions:

With regard to oil and gas development on the east reservation (reference – Surface Operating Standards for Oil and Gas Development "Gold Book"), the Grantee agrees to the following:

1. Locations selected for well sites and oilfield infrastructure will be planned so as to minimize long-term disruption of the surface resources and existing uses, and to promote successful reclamation. In addition, design and construction techniques and other practices will be employed that will minimize surface disturbance and the associated effects of proposed operations and maintain the reclamation potential of the site.

2. During well pad construction or alteration, all surface soil materials (topsoil) will be removed from the entire cut and fill area and temporarily stockpiled for reuse during interim and final reclamation. Topsoil will be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials will not be placed on top of topsoil material at any point in the operation. Stockpiles will be located and protected so that erosion is minimized and reclamation potential is maximized.

3. Reserve pits will not be constructed in natural watercourses. Watercourses include lake beds, gullies, draws, streambeds, washes, or channels that are delineated on a 1:24,000 USGS quadrangle map or have a hydrologic connection to streams, rivers, or lakes. The Grantee will avoid constructing reserve pits in areas of shallow groundwater.

4. Reserve pits shall be designed to contain all anticipated drilling muds, cuttings, fracture fluids, and precipitation while maintaining at least 2 feet of freeboard. Pits may be lined with synthetic liners or other materials such as bentonite or clay.

5. To prevent contamination of ground water and soils or to conserve water, the Grantee shall use a closed-loop drilling system or line reserve pits with an impermeable liner, when it is anticipated that pits will contain moderate or high levels of hydrocarbons and chloride, or pits are located in areas of shallow groundwater or porous soils over fractured bedrock aquifers. If a closed loop system is used, upon completion of the well, hard rocked surfaces constructed for drilling and frac tanks, no longer needed for production, shall be reclaimed as noted below.

6. Depending on the proposed contents of the pit and sensitivity of the environment, the Grantor may

require a leak detection system or the use of self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas.

7. Reclamation is required of any surface previously disturbed that is not necessary for continued production operations. Earthwork for interim and final reclamation generally must be completed within 6 months of well completion or plugging (weather permitting). Reclamation measures will begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

8. During the life of the development, all disturbed areas not needed for active support of production operations shall undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses. At final abandonment, well locations, power/pipelines, production facilities, and access roads must undergo final reclamation so that the character and productivity of the land and water are restored.

9. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation. Topsoil is respread over areas not needed for all-weather operations. When practical, the operator will respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

10. To achieve final reclamation of a recently drilled dry hole, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil redistributed, and the site revegetated. To achieve final reclamation of a formerly producing well, all topsoil and vegetation must be restripped from all portions of the old well site that were not previously reshaped to blend with the surrounding contour. All disturbed areas are then recontoured back to the original contour or a contour that blends with the surrounding landform, topsoil is redistributed, and the site revegetated. In recontouring areas that have been surfaced with gravel, soil cement, or similar materials, the material must be removed from the well location.

11. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The site will be prepared to provide a seedbed for reestablishment of desirable vegetation. Site preparation will include ripping, scarifying, dozer track-walking, mulching, fertilizing, seeding, and planting.

12. The operator must achieve the short-term stability, visual, hydrological, and productivity objectives of the surface management agency and take the steps necessary to ensure that long-term objectives will be reached through natural processes.

13. At abandonment, oilfield access roads must be reclaimed by the Grantee unless requested otherwise by the Grantor. Final reclamation will include removal of road base and surface materials, recontouring the road back to the original contour, seeding, controlling noxious weeds, and other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, placing water bars, mulching, redistributing woody debris, and barricading.

14. Reclamation will be judged successful when a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and to re-establish wildlife habitat or forage production. The site must be free of State- or county-listed noxious weeds, oil field debris, contaminated soil, and equipment.

15. Other facilities and areas of surface disturbance associated with Federal oil and gas lease development, including water impoundments, power/pipelines, metering buildings, compression facilities,

and tank batteries must be removed and reclaimed in accordance with the standards identified previously. In addition to the provisions stated above, the following apply:

a. The Barksdale Natural Resources Manager will notify the Bureau of Land Management (BLM) when clearance to proceed is granted. The Grantee will comply with all BAFB security requirements including registration of vehicles and personnel. During 24-hour drilling and well completion operations the Grantee may be required to maintain a 24-hour security guard on the base perimeter gate being used by the Grantee's personnel.

b. The provisions contained in this permit supplement the provisions of any existing lease agreement between the parties. The provisions contained in this permit apply to any person or persons who are agents, employees, or invitees of the Grantee. The provisions further apply to independent contractors or sub-contractors and its agents, employees, and invitees who conduct business with the Grantee on, in, or above the legal boundaries of BAFB, Louisiana. Further, whether or not signed by Grantee, the provisions of this permit shall be binding and enforceable upon Grantee, and Grantee's preparation for or drilling of the gas wells contemplated by this permit shall be conclusive evidence of Grantee's acceptance of the terms and provisions of this permit.

c. The use, operation, and occupation of the premises shall be without cost or expense to the Department of the Air Force, and is subject to the general supervision and control of 2 BW/CC. In accepting this permit, Grantee recognizes the installation serves the national defense and that Grantor will not permit activities that interfere with the installation's military mission. This installation is a closed military installation and is subject to the provisions of the Internal Security Act of 1950, 50 U.S.C. §797. Access to the installation is subject to the control of its commanding officer and is governed by such regulations and orders as have been lawfully promulgated or approved by the Secretary of Defense or by any designated military commander. Any access granted to Grantee, its employees, agents, contractors, and invitees is subject to such regulations and orders. This permit is subject to all regulations and orders currently promulgated or which may be promulgated by lawful authority as well as all other conditions contained in this permit. Violation of any such regulations, orders, or conditions may result in the termination of this permit. Such regulations and orders may, by way of example and not by way of limitation, include restrictions on who may enter, how many may enter at any one time, when they may enter, and what areas of the installation they may visit. Grantee is responsible for the actions of its employees, agents, contractors, and invitees while on the installation and acting under this permit; any liability of the Grantor resulting from the actions of Grantee's employees, agents, contractors, and invitees shall be the responsibility of Grantee and Grantee shall hold Grantor harmless for any such liability and indemnify it.

d. This permit does not guarantee that the installation will remain open or active at its current level.

e. The Grantee must comply with the National Environmental Policy Act of 1969 (NEPA), as well as all regulations. The Grantee will be responsible for preparing and obtaining all permits required by all environmental agencies and regulations. Proof of compliance will be made to the BAFB Natural Resources Manager or the Installation Management Flight Chief. All notices of violation, administrative orders, fines, or special assessments resulting from any failure to comply with any applicable statute or regulation will remain the sole responsibility of the Grantee. All civil and criminal penalties resulting from violations of any environmental law or regulation will be paid by the Grantee. (This shall include any costs for restoration or rehabilitation of the environment assessed against the Grantee or lease owner by an environmental agency or court of law.)

f. Grantee must comply with all applicable laws on occupational safety and health, the handling and storage of hazardous materials, and the proper disposal of solid and hazardous wastes generated by its activities. Grantee will not bring solid or hazardous waste upon the premises. Grantee will also be

responsible for the cost of proper disposal of solid and hazardous wastes generated by its activities under this permit.

g. Grantee shall comply with all applicable environmental laws and requirements and in particular those requirements concerning the protection and enhancement of environmental quality, natural resources, pollution control and abatement, safe drinking water, and solid and hazardous waste. Responsibility for compliance with such requirements rests exclusively with Grantee.

h. The Grantee agrees to provide timely notification within 10 days, as required by the applicable environmental laws or regulations to the applicable environmental agency and the Natural Resources Manager at BAFB, Louisiana, in the event that its operations violate or fail to comply with an environmental law, order, rule, or regulation.

i. Grantee shall treat, at Grantee's sole expense, all exposed 30%+ slopes on and around the pad with a hydromulch, containing native grass seed, during and after drilling operations to minimize erosion. Further erosion control at drainage sites or areas that have the potential for high water energy may require additional measures such as silt screens, rip rap, and or hay bales to prevent rapid loss of soils. Erosion control measures must be approved by the BAFB Natural Resources Manager and maintained throughout the life of the well.

j. Grantee shall ensure that all exposed soil on the well site, pipelines, and road right-of-way not covered by gravel or road surface shall be fertilized and planted immediately (10 days) after the well pad is complete. Until disturbed areas are successfully revegetated, exposed soil shall be seeded according to the following planting rates and schedule: 15 lbs/acre of quality Bermuda grass seed (April 1 – Aug 31) 30 lbs/acre of quality annual rye grass (Sept 1- March 30). Fertilize the planting of Bermuda and/or rye grass @ the rate of 500 pounds of 12-12-12 fertilizer per acre with a repeat application two to three months after planting. Following fertilization and seeding, grantee shall cover seed lightly by dragging area with a chain and mulch with 1 1/2 tons of hay mulch/acre or use an equivalent hydromulch or geotextile operation for erosion control. An Air Force inspector must be on site at time of planting and fertilizing. Any area that fails to establish vegetative cover after one month shall be replanted and fertilized immediately at the above listed rate. After well completion and at the earliest opportunity between December – February, the pit area shall be planted with advanced generation genetically superior loblolly pine seedlings. The grantee shall plant the pine seedlings on 10 X 10 foot spacing. The grantee may wait one year or until the following planting season (December – February) after the pit is closed to replant with advanced generation loblolly pine seedlings to ensure that the pit has settled and all sinkholes or erosion problems have been remediated prior to replanting.

k. Grantee will apply sufficient amounts of crushed concrete or SB-2 rock to lease access roads used to move drilling equipment to the location. Prior to drilling operations the grantee will properly grade and apply a minimum of 500 tons of crushed concrete or SB-2 rock to lease road sections as directed by BAFB Forester. Grantee will deliver weight tickets to the BAFB Forester. The Grantee will install culvert corrals at road intersections as directed by the Base Forester. Grantee will protect roads, prevent washouts and minimize silting of adjacent waters in these areas. The Grantee will adequately maintain access roads during the drilling operations and through the life of the well in accordance with directions of Barksdale AFB Natural Resources Manager or his designee.

l. Base roads may be used by the Grantee subject to the paramount right control by the Air Force. At such time as the Air Force determines that use by the Grantee has caused damage to or increased the maintenance on these roads, the Air Force and the Grantee shall agree upon appropriate compensation as a condition for continued use. If no agreement can be reached, the Air Force's determination of appropriate compensation shall be conclusive. Vehicle access to an area not serviced by an existing road is subject to approval by the BAFB Natural Resources Manager or the Installation Management Chief.

m. The location of the proposed drill site falls within the exclusive jurisdiction of the federal government. Any person or persons within the jurisdiction are subject to all civil and criminal regulations enforceable by the federal government through its duly authorized agents.

n. Grantor shall not be responsible for damage to property or injuries to persons which may arise from, or be attributable or incident to, the condition or state of repair of the Premises, or its use and occupation by Grantee. Grantee agrees that it assumes all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, invitees, or others, by reason of or incident to Grantee's possession and/or use of the Premises, and the activities conducted under this Permit. Grantee shall, at its expense, settle and pay any claims arising out of the use and occupancy of the Premises and retain any recoveries from such claims; provided, however, that Grantor or another agency of the Government may, as a matter of its internal policy, assume responsibility for certain claims of that agency's personnel while assigned or detailed to the Grantee, or otherwise present on the premises.

o. Grantee shall, at all times, protect, repair, and maintain the premises in good order and condition at its own expense and without cost or expense to Grantor. Any property on the premises damaged or destroyed by Grantee incident to the exercise of the privileges herein granted should be promptly repaired or replaced by Grantee to the satisfaction of Grantor. Any interference with the use of or damage to property under control of the Department of the Air Force incident to the exercise of the privileges herein granted shall be promptly corrected by Grantee to the satisfaction of Grantor. If Grantee fails to promptly repair or replace any such property, said officer may repair or replace such property and Grantee shall be liable for the costs of such repair or replacement. Any damage, such as rutting, to installation roads due to Grantee's use of the premises shall be repaired immediately to the satisfaction of Grantor by Grantee, at Grantee's sole expense.

p. The Grantee shall routinely inspect and maintain the drill site area in a neat and orderly fashion. Old material not necessary for site stabilization shall be removed. This includes old silt fence, t-post, and wire mesh fence previously installed around the perimeter of the existing location. Upon completion or abandonment of any well or drilling site, or on termination of this permit, Grantee shall remove its property therefrom, and restore the premises to their original condition. Grantor may, in its sole and absolute discretion, consent to Grantee abandoning all or part of its property and improvements on the Installation. Restoration of the premises, for purposes of this condition, shall include any remedial or removal action necessitated by the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or the Resource Conservation and Recovery Act or similar state laws applicable to the premises. If Grantee fails to perform the required removal and restoration in a timely manner, Grantor may perform the required removal and restoration in Grantee's place and Grantee shall reimburse Grantor its costs of removal and restoration.

Steven S. Vincent

STEVEN S. VINCENT, GS-14, DAF
Deputy Base Civil Engineer

DEPARTMENT OF THE AIR FORCE

2D CIVIL ENGINEER SQUADRON (AFGSC)
BARKSDALE AIR FORCE BASE LOUISIANA

MEMORANDUM FOR DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

FROM: 2 CES/CC
334 Davis Ave West, Ste 200
Barksdale AFB LA 71110-2078

SUBJECT: Permit to Drill Gas Well, Premier Natural Resources USA (P3) 85 ALT, Surface Management and Environmental Requirements

I, on behalf of Barksdale Air Force Base (Grantor), approve the application of Premier Natural Resources (Grantee) to drill gas well USA 85 ALT on Barksdale Air Force Base's (BAFB) East Reservation, subject to the following terms and conditions:

With regard to oil and gas development on the east reservation (reference – Surface Operating Standards for Oil and Gas Development "Gold Book"), the Grantee agrees to the following:

1. Locations selected for well sites and oilfield infrastructure will be planned so as to minimize long-term disruption of the surface resources and existing uses, and to promote successful reclamation. In addition, design and construction techniques and other practices will be employed that will minimize surface disturbance and the associated effects of proposed operations and maintain the reclamation potential of the site.

2. During well pad construction or alteration, all surface soil materials (topsoil) will be removed from the entire cut and fill area and temporarily stockpiled for reuse during interim and final reclamation. Topsoil will be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials will not be placed on top of topsoil material at any point in the operation. Stockpiles will be located and protected so that erosion is minimized and reclamation potential is maximized.

3. Reserve pits will not be constructed in natural watercourses. Watercourses include lake beds, gullies, draws, streambeds, washes, or channels that are delineated on a 1:24,000 USGS quadrangle map or have a hydrologic connection to streams, rivers, or lakes. The Grantee will avoid constructing reserve pits in areas of shallow groundwater.

4. Reserve pits shall be designed to contain all anticipated drilling muds, cuttings, fracture fluids, and precipitation while maintaining at least 2 feet of freeboard. Pits may be lined with synthetic liners or other materials such as bentonite or clay.

5. To prevent contamination of ground water and soils or to conserve water, the Grantee shall use a closed-loop drilling system or line reserve pits with an impermeable liner, when it is anticipated that pits will contain moderate or high levels of hydrocarbons and chloride, or pits are located in areas of shallow groundwater or porous soils over fractured bedrock aquifers. If a closed loop system is used, upon completion of the well, hard rocked surfaces constructed for drilling and frac tanks, no longer needed for production, shall be reclaimed as noted below.

6. Depending on the proposed contents of the pit and sensitivity of the environment, the Grantor may

require a leak detection system or the use of self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas.

7. Reclamation is required of any surface previously disturbed that is not necessary for continued production operations. Earthwork for interim and final reclamation generally must be completed within 6 months of well completion or plugging (weather permitting). Reclamation measures will begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

8. During the life of the development, all disturbed areas not needed for active support of production operations shall undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses. At final abandonment, well locations, power/pipelines, production facilities, and access roads must undergo final reclamation so that the character and productivity of the land and water are restored.

9. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation. Topsoil is respread over areas not needed for all-weather operations. When practical, the operator will respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

10. To achieve final reclamation of a recently drilled dry hole, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil redistributed, and the site revegetated. To achieve final reclamation of a formerly producing well, all topsoil and vegetation must be restripped from all portions of the old well site that were not previously reshaped to blend with the surrounding contour. All disturbed areas are then recontoured back to the original contour or a contour that blends with the surrounding landform, topsoil is redistributed, and the site revegetated. In recontouring areas that have been surfaced with gravel, soil cement, or similar materials, the material must be removed from the well location.

11. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The site will be prepared to provide a seedbed for reestablishment of desirable vegetation. Site preparation will include ripping, scarifying, dozer track-walking, mulching, fertilizing, seeding, and planting.

12. The operator must achieve the short-term stability, visual, hydrological, and productivity objectives of the surface management agency and take the steps necessary to ensure that long-term objectives will be reached through natural processes.

13. At abandonment, oilfield access roads must be reclaimed by the Grantee unless requested otherwise by the Grantor. Final reclamation will include removal of road base and surface materials, recontouring the road back to the original contour, seeding, controlling noxious weeds, and other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, placing water bars, mulching, redistributing woody debris, and barricading.

14. Reclamation will be judged successful when a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and to re-establish wildlife habitat or forage production. The site must be free of State- or county-listed noxious weeds, oil field debris, contaminated soil, and equipment.

15. Other facilities and areas of surface disturbance associated with Federal oil and gas lease development, including water impoundments, power/pipelines, metering buildings, compression facilities,

and tank batteries must be removed and reclaimed in accordance with the standards identified previously. In addition to the provisions stated above, the following apply:

a. The Barksdale Natural Resources Manager will notify the Bureau of Land Management (BLM) when clearance to proceed is granted. The Grantee will comply with all BAFB security requirements including registration of vehicles and personnel. During 24-hour drilling and well completion operations the Grantee may be required to maintain a 24-hour security guard on the base perimeter gate being used by the Grantee's personnel.

b. The provisions contained in this permit supplement the provisions of any existing lease agreement between the parties. The provisions contained in this permit apply to any person or persons who are agents, employees, or invitees of the Grantee. The provisions further apply to independent contractors or sub-contractors and its agents, employees, and invitees who conduct business with the Grantee on, in, or above the legal boundaries of BAFB, Louisiana. Further, whether or not signed by Grantee, the provisions of this permit shall be binding and enforceable upon Grantee, and Grantee's preparation for or drilling of the gas wells contemplated by this permit shall be conclusive evidence of Grantee's acceptance of the terms and provisions of this permit.

c. The use, operation, and occupation of the premises shall be without cost or expense to the Department of the Air Force, and is subject to the general supervision and control of 2 BW/CC. In accepting this permit, Grantee recognizes the installation serves the national defense and that Grantor will not permit activities that interfere with the installation's military mission. This installation is a closed military installation and is subject to the provisions of the Internal Security Act of 1950, 50 U.S.C. §797. Access to the installation is subject to the control of its commanding officer and is governed by such regulations and orders as have been lawfully promulgated or approved by the Secretary of Defense or by any designated military commander. Any access granted to Grantee, its employees, agents, contractors, and invitees is subject to such regulations and orders. This permit is subject to all regulations and orders currently promulgated or which may be promulgated by lawful authority as well as all other conditions contained in this permit. Violation of any such regulations, orders, or conditions may result in the termination of this permit. Such regulations and orders may, by way of example and not by way of limitation, include restrictions on who may enter, how many may enter at any one time, when they may enter, and what areas of the installation they may visit. Grantee is responsible for the actions of its employees, agents, contractors, and invitees while on the installation and acting under this permit; any liability of the Grantor resulting from the actions of Grantee's employees, agents, contractors, and invitees shall be the responsibility of Grantee and Grantee shall hold Grantor harmless for any such liability and indemnify it.

d. This permit does not guarantee that the installation will remain open or active at its current level.

e. The Grantee must comply with the National Environmental Policy Act of 1969 (NEPA), as well as all regulations. The Grantee will be responsible for preparing and obtaining all permits required by all environmental agencies and regulations. Proof of compliance will be made to the BAFB Natural Resources Manager or the Installation Management Flight Chief. All notices of violation, administrative orders, fines, or special assessments resulting from any failure to comply with any applicable statute or regulation will remain the sole responsibility of the Grantee. All civil and criminal penalties resulting from violations of any environmental law or regulation will be paid by the Grantee. (This shall include any costs for restoration or rehabilitation of the environment assessed against the Grantee or lease owner by an environmental agency or court of law.)

f. Grantee must comply with all applicable laws on occupational safety and health, the handling and storage of hazardous materials, and the proper disposal of solid and hazardous wastes generated by its activities. Grantee will not bring solid or hazardous waste upon the premises. Grantee will also be

responsible for the cost of proper disposal of solid and hazardous wastes generated by its activities under this permit.

g. Grantee shall comply with all applicable environmental laws and requirements and in particular those requirements concerning the protection and enhancement of environmental quality, natural resources, pollution control and abatement, safe drinking water, and solid and hazardous waste. Responsibility for compliance with such requirements rests exclusively with Grantee.

h. The Grantee agrees to provide timely notification within 10 days, as required by the applicable environmental laws or regulations to the applicable environmental agency and the Natural Resources Manager at BAFB, Louisiana, in the event that its operations violate or fail to comply with an environmental law, order, rule, or regulation.

i. Grantee shall treat, at Grantee's sole expense, all exposed 30%+ slopes on and around the pad with a hydromulch, containing native grass seed, during and after drilling operations to minimize erosion. Further erosion control at drainage sites or areas that have the potential for high water energy may require additional measures such as silt screens, rip rap, and or hay bales to prevent rapid loss of soils. Erosion control measures must be approved by the BAFB Natural Resources Manager and maintained throughout the life of the well.

j. Grantee shall ensure that all exposed soil on the well site, pipelines, and road right-of-way not covered by gravel or road surface shall be fertilized and planted immediately (10 days) after the well pad is complete. Until disturbed areas are successfully revegetated, exposed soil shall be seeded according to the following planting rates and schedule: 15 lbs/acre of quality Bermuda grass seed (April 1 – Aug 31) 30 lbs/acre of quality annual rye grass (Sept 1- March 30). Fertilize the planting of Bermuda and/or rye grass @ the rate of 500 pounds of 12-12-12 fertilizer per acre with a repeat application two to three months after planting. Following fertilization and seeding, grantee shall cover seed lightly by dragging area with a chain and mulch with 1 1/2 tons of hay mulch/acre or use an equivalent hydromulch or geotextile operation for erosion control. An Air Force inspector must be on site at time of planting and fertilizing. Any area that fails to establish vegetative cover after one month shall be replanted and fertilized immediately at the above listed rate. After well completion and at the earliest opportunity between December – February, the pit area shall be planted with advanced generation genetically superior loblolly pine seedlings. The grantee shall plant the pine seedlings on 10 X 10 foot spacing. The grantee may wait one year or until the following planting season (December – February) after the pit is closed to replant with advanced generation loblolly pine seedlings to ensure that the pit has settled and all sinkholes or erosion problems have been remediated prior to replanting.

k. Grantee will apply sufficient amounts of crushed concrete or SB-2 rock to lease access roads used to move drilling equipment to the location. Prior to drilling operations the grantee will properly grade and apply a minimum of 500 tons of crushed concrete or SB-2 rock to lease road sections as directed by BAFB Forester. Grantee will deliver weight tickets to the BAFB Forester. The Grantee will install culvert corrals at road intersections as directed by the Base Forester. Grantee will protect roads, prevent washouts and minimize silting of adjacent waters in these areas. The Grantee will adequately maintain access roads during the drilling operations and through the life of the well in accordance with directions of Barksdale AFB Natural Resources Manager or his designee.

l. Base roads may be used by the Grantee subject to the paramount right control by the Air Force. At such time as the Air Force determines that use by the Grantee has caused damage to or increased the maintenance on these roads, the Air Force and the Grantee shall agree upon appropriate compensation as a condition for continued use. If no agreement can be reached, the Air Force's determination of appropriate compensation shall be conclusive. Vehicle access to an area not serviced by an existing road is subject to approval by the BAFB Natural Resources Manager or the Installation Management Chief.

m. The location of the proposed drill site falls within the exclusive jurisdiction of the federal government. Any person or persons within the jurisdiction are subject to all civil and criminal regulations enforceable by the federal government through its duly authorized agents.

n. Grantor shall not be responsible for damage to property or injuries to persons which may arise from, or be attributable or incident to, the condition or state of repair of the Premises, or its use and occupation by Grantee. Grantee agrees that it assumes all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, invitees, or others, by reason of or incident to Grantee's possession and/or use of the Premises, and the activities conducted under this Permit. Grantee shall, at its expense, settle and pay any claims arising out of the use and occupancy of the Premises and retain any recoveries from such claims; provided, however, that Grantor or another agency of the Government may, as a matter of its internal policy, assume responsibility for certain claims of that agency's personnel while assigned or detailed to the Grantee, or otherwise present on the premises.

o. Grantee shall, at all times, protect, repair, and maintain the premises in good order and condition at its own expense and without cost or expense to Grantor. Any property on the premises damaged or destroyed by Grantee incident to the exercise of the privileges herein granted should be promptly repaired or replaced by Grantee to the satisfaction of Grantor. Any interference with the use of or damage to property under control of the Department of the Air Force incident to the exercise of the privileges herein granted shall be promptly corrected by Grantee to the satisfaction of Grantor. If Grantee fails to promptly repair or replace any such property, said officer may repair or replace such property and Grantee shall be liable for the costs of such repair or replacement. Any damage, such as rutting, to installation roads due to Grantee's use of the premises shall be repaired immediately to the satisfaction of Grantor by Grantee, at Grantee's sole expense.

p. The Grantee shall routinely inspect and maintain the drill site area in a neat and orderly fashion. Old material not necessary for site stabilization shall be removed. This includes old silt fence, t-post, and wire mesh fence previously installed around the perimeter of the existing location. Upon completion or abandonment of any well or drilling site, or on termination of this permit, Grantee shall remove its property therefrom, and restore the premises to their original condition. Grantor may, in its sole and absolute discretion, consent to Grantee abandoning all or part of its property and improvements on the Installation. Restoration of the premises, for purposes of this condition, shall include any remedial or removal action necessitated by the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or the Resource Conservation and Recovery Act or similar state laws applicable to the premises. If Grantee fails to perform the required removal and restoration in a timely manner, Grantor may perform the required removal and restoration in Grantee's place and Grantee shall reimburse Grantor its costs of removal and restoration.

Steven S. Vincent

STEVEN S. VINCENT, GS-14, DAF
Deputy Base Civil Engineer

DEPARTMENT OF THE AIR FORCE

2D CIVIL ENGINEER SQUADRON (AFGSC)
BARKSDALE AIR FORCE BASE LOUISIANA

MEMORANDUM FOR DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

FROM: 2 CES/CC
334 Davis Ave West, Ste 200
Barksdale AFB LA 71110-2078

SUBJECT: Permit to Drill Gas Well, Premier Natural Resources USA (P3) 86 ALT, Surface Management and Environmental Requirements

I, on behalf of Barksdale Air Force Base (Grantor), approve the application of Premier Natural Resources (Grantee) to drill gas well USA 86 ALT on Barksdale Air Force Base's (BAFB) East Reservation, subject to the following terms and conditions:

With regard to oil and gas development on the east reservation (reference – Surface Operating Standards for Oil and Gas Development "Gold Book"), the Grantee agrees to the following:

1. Locations selected for well sites and oilfield infrastructure will be planned so as to minimize long-term disruption of the surface resources and existing uses, and to promote successful reclamation. In addition, design and construction techniques and other practices will be employed that will minimize surface disturbance and the associated effects of proposed operations and maintain the reclamation potential of the site.

2. During well pad construction or alteration, all surface soil materials (topsoil) will be removed from the entire cut and fill area and temporarily stockpiled for reuse during interim and final reclamation. Topsoil will be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials will not be placed on top of topsoil material at any point in the operation. Stockpiles will be located and protected so that erosion is minimized and reclamation potential is maximized.

3. To prevent contamination of ground water and soils or to conserve water, the Grantee shall use a closed-loop drilling system. Upon completion of the well, hard rocked surfaces constructed for drilling and frac tanks, no longer needed for production, shall be reclaimed as noted below.

4. Depending on the proposed contents of the tanks and sensitivity of the environment, the Grantor may require a leak detection system on the self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas.

5. Reclamation is required of any surface previously disturbed that is not necessary for continued production operations. Earthwork for interim and final reclamation generally must be completed within 6 months of well completion or plugging (weather permitting). Reclamation measures will begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

6. During the life of the development, all disturbed areas not needed for active support of production operations shall undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses. At final abandonment, well locations, power/pipelines,

production facilities, and access roads must undergo final reclamation so that the character and productivity of the land and water are restored.

7. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation. Topsoil is respread over areas not needed for all-weather operations. When practical, the operator will respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

8. To achieve final reclamation of a recently drilled dry hole, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil redistributed, and the site revegetated. To achieve final reclamation of a formerly producing well, all topsoil and vegetation must be restripped from all portions of the old well site that were not previously reshaped to blend with the surrounding contour. All disturbed areas are then recontoured back to the original contour or a contour that blends with the surrounding landform, topsoil is redistributed, and the site revegetated. In recontouring areas that have been surfaced with gravel, soil cement, or similar materials, the material must be removed from the well location.

9. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The site will be prepared to provide a seedbed for reestablishment of desirable vegetation. Site preparation will include ripping, scarifying, dozer track-walking, mulching, fertilizing, seeding, and planting.

10. The operator must achieve the short-term stability, visual, hydrological, and productivity objectives of the surface management agency and take the steps necessary to ensure that long-term objectives will be reached through natural processes.

11. At abandonment, oilfield access roads must be reclaimed by the Grantee unless requested otherwise by the Grantor. Final reclamation will include removal of road base and surface materials, recontouring the road back to the original contour, seeding, controlling noxious weeds, and other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, placing water bars, mulching, redistributing woody debris, and barricading.

12. Reclamation will be judged successful when a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and to re-establish wildlife habitat or forage production. The site must be free of State- or county-listed noxious weeds, oil field debris, contaminated soil, and equipment.

13. Other facilities and areas of surface disturbance associated with Federal oil and gas lease development, including water impoundments, power/pipelines, metering buildings, compression facilities, and tank batteries must be removed and reclaimed in accordance with the standards identified previously. In addition, the following provisions apply:

a. The Barksdale Natural Resources Manager will notify the Bureau of Land Management (BLM) when clearance to proceed is granted. The Grantee will comply with all BAFB security requirements including registration of vehicles and personnel. During 24-hour drilling and well completion operations the Grantee may be required to maintain a 24-hour security guard on the base perimeter gate being used by the Grantee's personnel.

b. The provisions contained in this permit supplement the provisions of any existing lease agreement between the parties. The provisions contained in this permit apply to any person or persons

who are agents, employees, or invitees of the Grantee. The provisions further apply to independent contractors or sub-contractors and its agents, employees, and invitees who conduct business with the Grantee on, in, or above the legal boundaries of BAFB, Louisiana. Further, whether or not signed by Grantee, the provisions of this permit shall be binding and enforceable upon Grantee, and Grantee's preparation for or drilling of the gas wells contemplated by this permit shall be conclusive evidence of Grantee's acceptance of the terms and provisions of this permit.

c. The use, operation, and occupation of the premises shall be without cost or expense to the Department of the Air Force, and is subject to the general supervision and control of 2 BW/CC. In accepting this permit, Grantee recognizes the installation serves the national defense and that Grantor will not permit activities that interfere with the installation's military mission. This installation is a closed military installation and is subject to the provisions of the Internal Security Act of 1950, 50 U.S.C. §797. Access to the installation is subject to the control of its commanding officer and is governed by such regulations and orders as have been lawfully promulgated or approved by the Secretary of Defense or by any designated military commander. Any access granted to Grantee, its employees, agents, contractors, and invitees is subject to such regulations and orders. This permit is subject to all regulations and orders currently promulgated or which may be promulgated by lawful authority as well as all other conditions contained in this permit. Violation of any such regulations, orders, or conditions may result in the termination of this permit. Such regulations and orders may, by way of example and not by way of limitation, include restrictions on who may enter, how many may enter at any one time, when they may enter, and what areas of the installation they may visit. Grantee is responsible for the actions of its employees, agents, contractors, and invitees while on the installation and acting under this permit; any liability of the Grantor resulting from the actions of Grantee's employees, agents, contractors, and invitees shall be the responsibility of Grantee and Grantee shall hold Grantor harmless for any such liability and indemnify it.

d. This permit does not guarantee that the installation will remain open or active at its current level.

e. The Grantee must comply with the National Environmental Policy Act of 1969 (NEPA), as well as all regulations. The Grantee will be responsible for preparing and obtaining all permits required by all environmental agencies and regulations. Proof of compliance will be made to the BAFB Natural Resources Manager or the Installation Management Flight Chief. All notices of violation, administrative orders, fines, or special assessments resulting from any failure to comply with any applicable statute or regulation will remain the sole responsibility of the Grantee. All civil and criminal penalties resulting from violations of any environmental law or regulation will be paid by the Grantee. (This shall include any costs for restoration or rehabilitation of the environment assessed against the Grantee or lease owner by an environmental agency or court of law.)

f. Grantee must comply with all applicable laws on occupational safety and health, the handling and storage of hazardous materials, and the proper disposal of solid and hazardous wastes generated by its activities. Grantee will not bring solid or hazardous waste upon the premises. Grantee will also be responsible for the cost of proper disposal of solid and hazardous wastes generated by its activities under this permit.

g. Grantee shall comply with all applicable environmental laws and requirements and in particular those requirements concerning the protection and enhancement of environmental quality, natural resources, pollution control and abatement, safe drinking water, and solid and hazardous waste. Responsibility for compliance with such requirements rests exclusively with Grantee.

h. The Grantee agrees to provide timely notification within 10 days, as required by the applicable environmental laws or regulations to the applicable environmental agency and the Natural Resources Manager at BAFB, Louisiana, in the event that its operations violate or fail to comply with an environmental law, order, rule, or regulation.

i. Grantee shall treat, at Grantee's sole expense, all exposed 30%+ slopes on and around the pad with a hydromulch, containing native grass seed, during and after drilling operations to minimize erosion. Further erosion control at drainage sites or areas that have the potential for high water energy may require additional measures such as silt screens, rip rap, and or hay bales to prevent rapid loss of soils. Erosion control measures must be approved by the BAFB Natural Resources Manager and maintained throughout the life of the well.

j. Grantee shall ensure that all exposed soil on the well site, pipelines, and road right-of-way not covered by gravel or road surface shall be fertilized and planted immediately (10 days) after the well pad is complete. Until disturbed areas are successfully revegetated, exposed soil shall be seeded according to the following planting rates and schedule: 15 lbs/acre of quality Bermuda grass seed (April 1 – Aug 31) 30 lbs/acre of quality annual rye grass (Sept 1- March 30). Fertilize the planting of Bermuda and/or rye grass @ the rate of 500 pounds of 12-12-12 fertilizer per acre with a repeat application two to three months after planting. Following fertilization and seeding, grantee shall cover seed lightly by dragging area with a chain and mulch with 1 1/2 tons of hay mulch/acre or use an equivalent hydromulch or geotextile operation for erosion control. An Air Force inspector must be on site at time of planting and fertilizing. Any area that fails to establish vegetative cover after one month shall be replanted and fertilized immediately at the above listed rate. After well completion and at the earliest opportunity during December – February, the pit area shall be planted with advanced generation genetically superior loblolly pine seedlings. The grantee shall plant the pine seedlings on 10 X 10 foot spacing. The grantee may wait one year or until the following planting season (December – February) after the pit is closed to replant with advanced generation loblolly pine seedlings to ensure that the pit has settled and all sinkholes or erosion problems have been remediated prior to replanting.

k. Grantee will apply sufficient amounts of crushed concrete or SB-2 rock to lease access roads used to move drilling equipment to the location. Prior to drilling operations the grantee will properly grade and apply a minimum of 500 tons of crushed concrete or SB-2 rock to lease road sections as directed by BAFB Forester. Grantee will deliver weight tickets to the BAFB Forester. The Grantee will install culvert corrals at road intersections as directed by the Base Forester. Grantee will protect roads, prevent washouts and minimize silting of adjacent waters in these areas. The Grantee will adequately maintain access roads during the drilling operations and through the life of the well in accordance with directions of Barksdale AFB Natural Resources Manager or his designee.

l. Base roads may be used by the Grantee subject to the paramount right control by the Air Force. At such time as the Air Force determines that use by the Grantee has caused damage to or increased the maintenance on these roads, the Air Force and the Grantee shall agree upon appropriate compensation as a condition for continued use. If no agreement can be reached, the Air Force's determination of appropriate compensation shall be conclusive. Vehicle access to an area not serviced by an existing road is subject to approval by the BAFB Natural Resources Manager or the Asset Management Flight Chief.

m. The location of the proposed drill site falls within the exclusive jurisdiction of the federal government. Any person or persons within the jurisdiction are subject to all civil and criminal regulations enforceable by the federal government through its duly authorized agents.

n. Grantor shall not be responsible for damage to property or injuries to persons which may arise from, or be attributable or incident to, the condition or state of repair of the Premises, or its use and occupation by Grantee. Grantee agrees that it assumes all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, invitees, or others, by reason of or incident to Grantee's possession and/or use of the Premises, and the activities conducted under this Permit. Grantee shall, at its expense, settle and pay any claims arising out of the use and occupancy of the Premises and retain any recoveries from such claims; provided, however, that Grantor or another agency of the

Government may, as a matter of its internal policy, assume responsibility for certain claims of that agency's personnel while assigned or detailed to the Grantee, or otherwise present on the premises.

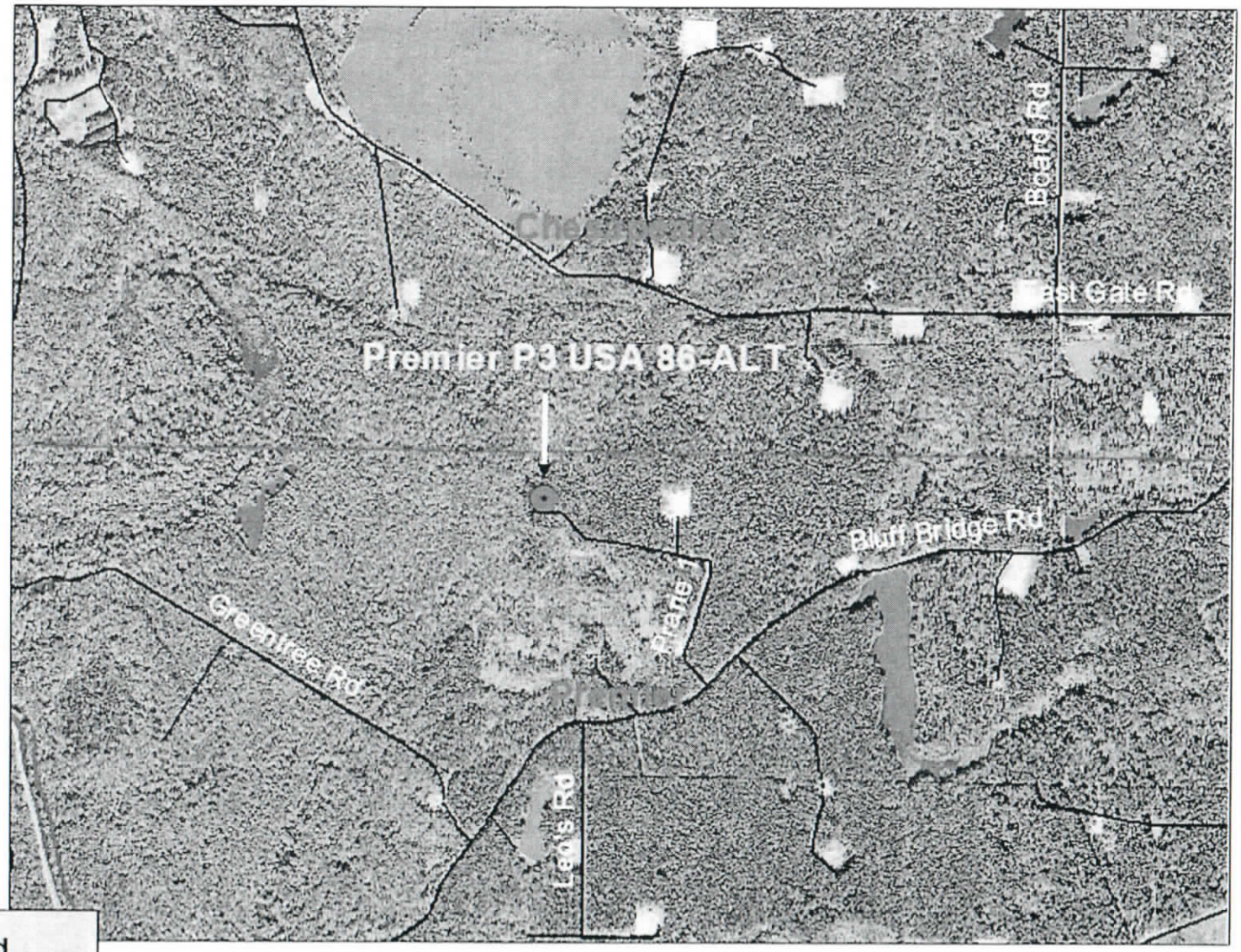
o. Grantee shall, at all times, protect, repair, and maintain the premises in good order and condition at its own expense and without cost or expense to Grantor. Any property on the premises damaged or destroyed by Grantee incident to the exercise of the privileges herein granted should be promptly repaired or replaced by Grantee to the satisfaction of Grantor. Any interference with the use of or damage to property under control of the Department of the Air Force incident to the exercise of the privileges herein granted shall be promptly corrected by Grantee to the satisfaction of Grantor. If Grantee fails to promptly repair or replace any such property, said officer may repair or replace such property and Grantee shall be liable for the costs of such repair or replacement. Any damage, such as rutting, to installation roads due to Grantee's use of the premises shall be repaired immediately to the satisfaction of Grantor by Grantee, at Grantee's sole expense.

p. The Grantee shall routinely inspect and maintain the drill site area in a neat and orderly fashion. Upon completion or abandonment of any well or drilling site, or on termination of this permit, Grantee shall remove its property therefrom, and restore the premises to their original condition. Grantor may, in its sole and absolute discretion, consent to Grantee abandoning all or part of its property and improvements on the Installation. Restoration of the premises, for purposes of this condition, shall include any remedial or removal action necessitated by the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or the Resource Conservation and Recovery Act or similar state laws applicable to the premises. If Grantee fails to perform the required removal and restoration in a timely manner, Grantor may perform the required removal and restoration in Grantee's place and Grantee shall reimburse Grantor its costs of removal and restoration.

Steven S. Vincent

STEVEN S. VINCENT, GS-14, DAF
Deputy Base Civil Engineer

Premier P3, USA 86-ALT Location Map
Sligo Field, Section 3, T17N, R12W



Legend

Gas Wells

Roads

0 0.25 0.5 1 Miles

Map Created 2-4-2014
BAFB Natural Resources

DEPARTMENT OF THE AIR FORCE

2D CIVIL ENGINEER SQUADRON (AFGSC)
BARKSDALE AIR FORCE BASE LOUISIANA

MEMORANDUM FOR DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

FROM: 2 CES/CC
334 Davis Ave West, Ste 200
Barksdale AFB LA 71110-2078

SUBJECT: Permit to Drill Gas Well, Premier Natural Resources USA (P3) 82 ALT, Surface Management and Environmental Requirements

I, on behalf of Barksdale Air Force Base (Grantor), approve the application of Premier Natural Resources (Grantee) to drill gas well USA 82 ALT on Barksdale Air Force Base's (BAFB) East Reservation, subject to the following terms and conditions:

With regard to oil and gas development on the east reservation (reference – Surface Operating Standards for Oil and Gas Development "Gold Book"), the Grantee agrees to the following:

1. Locations selected for well sites and oilfield infrastructure will be planned so as to minimize long-term disruption of the surface resources and existing uses, and to promote successful reclamation. In addition, design and construction techniques and other practices will be employed that will minimize surface disturbance and the associated effects of proposed operations and maintain the reclamation potential of the site.

2. During well pad construction or alteration, all surface soil materials (topsoil) will be removed from the entire cut and fill area and temporarily stockpiled for reuse during interim and final reclamation. Topsoil will be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials will not be placed on top of topsoil material at any point in the operation. Stockpiles will be located and protected so that erosion is minimized and reclamation potential is maximized.

3. All commercial timber cleared for this permit will be harvested and removed from the site. Any tree located outside this permit area that may present a hazard to the existing facilities shall be pruned or felled as approved by Natural Resources. Logging slash or any tree debris shall not be pushed into the adjacent forest. If this happens the Grantee will pay double the value of trees damaged or impacted from this violation. The Grantee will reimburse the United States Air Force for forest loss on USA Alt 82. The total forest and habitat loss reimbursement totals $1,334.45 (Atch 1). For accounting purposes, it is necessary that the Grantee make this payment with two (2) checks, one issued for $809.45 to account number 57F3875.0004 31FF 667100 and one issued for $525.00 to account number 575095 31SA 667100. Both checks are to be made payable to the U S Treasury. Mail the checks to: 2 CES/CEIEA (Natural Resources Office), c/o Natural Resources Manager, 6141 Range Rd., Barksdale AFB, LA 71110-2927.

4. To prevent contamination of ground water and soils or to conserve water, the Grantee shall use a closed-loop drilling system. Upon completion of the well, hard rocked surfaces constructed for drilling and frac tanks, no longer needed for production, shall be reclaimed as noted below.

5. Depending on the proposed contents of the tanks and sensitivity of the environment, the Grantor may require a leak detection system on the self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas.

6. Reclamation is required of any surface previously disturbed that is not necessary for continued production operations. Earthwork for interim and final reclamation generally must be completed within 6 months of well completion or plugging (weather permitting). Reclamation measures will begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

7. During the life of the development, all disturbed areas not needed for active support of production operations shall undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses. At final abandonment, well locations, power/pipelines, production facilities, and access roads must undergo final reclamation so that the character and productivity of the land and water are restored.

8. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation. Topsoil is respread over areas not needed for all-weather operations. When practical, the operator will respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

9. To achieve final reclamation of a recently drilled dry hole, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil redistributed, and the site revegetated. To achieve final reclamation of a formerly producing well, all topsoil and vegetation must be restripped from all portions of the old well site that were not previously reshaped to blend with the surrounding contour. All disturbed areas are then recontoured back to the original contour or a contour that blends with the surrounding landform, topsoil is redistributed, and the site revegetated. In recontouring areas that have been surfaced with gravel, soil cement, or similar materials, the material must be removed from the well location.

10. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The site will be prepared to provide a seedbed for reestablishment of desirable vegetation. Site preparation will include ripping, scarifying, dozer track-walking, mulching, fertilizing, seeding, and planting.

11. The operator must achieve the short-term stability, visual, hydrological, and productivity objectives of the surface management agency and take the steps necessary to ensure that long-term objectives will be reached through natural processes.

12. At abandonment, oilfield access roads must be reclaimed by the Grantee unless requested otherwise by the Grantor. Final reclamation will include removal of road base and surface materials, recontouring the road back to the original contour, seeding, controlling noxious weeds, and other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, placing water bars, mulching, redistributing woody debris, and barricading.

13. Reclamation will be judged successful when a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and to re-establish wildlife habitat or forage production. The site must be free of State- or county-listed noxious weeds, oil field debris, contaminated soil, and equipment.

14. Other facilities and areas of surface disturbance associated with Federal oil and gas lease development, including water impoundments, power/pipelines, metering buildings, compression facilities, and tank batteries must be removed and reclaimed in accordance with the standards identified previously. In addition, the following provisions apply:

a. The Barksdale Natural Resources Manager will notify the Bureau of Land Management (BLM) when clearance to proceed is granted. The Grantee will comply with all BAFB security requirements including registration of vehicles and personnel. During 24-hour drilling and well completion operations the Grantee may be required to maintain a 24-hour security guard on the base perimeter gate being used by the Grantee's personnel.

b. The provisions contained in this permit supplement the provisions of any existing lease agreement between the parties. The provisions contained in this permit apply to any person or persons who are agents, employees, or invitees of the Grantee. The provisions further apply to independent contractors or sub-contractors and its agents, employees, and invitees who conduct business with the Grantee on, in, or above the legal boundaries of BAFB, Louisiana. Further, whether or not signed by Grantee, the provisions of this permit shall be binding and enforceable upon Grantee, and Grantee's preparation for or drilling of the gas wells contemplated by this permit shall be conclusive evidence of Grantee's acceptance of the terms and provisions of this permit.

c. The use, operation, and occupation of the premises shall be without cost or expense to the Department of the Air Force, and is subject to the general supervision and control of 2 BW/CC. In accepting this permit, Grantee recognizes the installation serves the national defense and that Grantor will not permit activities that interfere with the installation's military mission. This installation is a closed military installation and is subject to the provisions of the Internal Security Act of 1950, 50 U.S.C. §797. Access to the installation is subject to the control of its commanding officer and is governed by such regulations and orders as have been lawfully promulgated or approved by the Secretary of Defense or by any designated military commander. Any access granted to Grantee, its employees, agents, contractors, and invitees is subject to such regulations and orders. This permit is subject to all regulations and orders currently promulgated or which may be promulgated by lawful authority as well as all other conditions contained in this permit. Violation of any such regulations, orders, or conditions may result in the termination of this permit. Such regulations and orders may, by way of example and not by way of limitation, include restrictions on who may enter, how many may enter at any one time, when they may enter, and what areas of the installation they may visit. Grantee is responsible for the actions of its employees, agents, contractors, and invitees while on the installation and acting under this permit; any liability of the Grantor resulting from the actions of Grantee's employees, agents, contractors, and invitees shall be the responsibility of Grantee and Grantee shall hold Grantor harmless for any such liability and indemnify it.

d. This permit does not guarantee that the installation will remain open or active at its current level.

e. The Grantee must comply with the National Environmental Policy Act of 1969 (NEPA), as well as all regulations. The Grantee will be responsible for preparing and obtaining all permits required by all environmental agencies and regulations. Proof of compliance will be made to the BAFB Natural Resources Manager or the Installation Management Flight Chief. All notices of violation, administrative orders, fines, or special assessments resulting from any failure to comply with any applicable statute or regulation will remain the sole responsibility of the Grantee. All civil and criminal penalties resulting from violations of any environmental law or regulation will be paid by the Grantee. (This shall include any costs for restoration or rehabilitation of the environment assessed against the Grantee or lease owner by an environmental agency or court of law.)

f. Grantee must comply with all applicable laws on occupational safety and health, the handling and storage of hazardous materials, and the proper disposal of solid and hazardous wastes generated by its

activities. Grantee will not bring solid or hazardous waste upon the premises. Grantee will also be responsible for the cost of proper disposal of solid and hazardous wastes generated by its activities under this permit.

g. Grantee shall comply with all applicable environmental laws and requirements and in particular those requirements concerning the protection and enhancement of environmental quality, natural resources, pollution control and abatement, safe drinking water, and solid and hazardous waste. Responsibility for compliance with such requirements rests exclusively with Grantee.

h. The Grantee agrees to provide timely notification within 10 days, as required by the applicable environmental laws or regulations to the applicable environmental agency and the Natural Resources Manager at BAFB, Louisiana, in the event that its operations violate or fail to comply with an environmental law, order, rule, or regulation.

i. Grantee shall treat, at Grantee's sole expense, all exposed 30%+ slopes on and around the pad with a hydromulch, containing native grass seed, during and after drilling operations to minimize erosion. Further erosion control at drainage sites or areas that have the potential for high water energy may require additional measures such as silt screens, rip rap, and or hay bales to prevent rapid loss of soils. Erosion control measures must be approved by the BAFB Natural Resources Manager and maintained throughout the life of the well.

j. Grantee shall ensure that all exposed soil on the well site, pipelines, and road right-of-way not covered by gravel or road surface shall be fertilized and planted immediately (10 days) after the well pad is complete. Until disturbed areas are successfully revegetated, exposed soil shall be seeded according to the following planting rates and schedule: 15 lbs/acre of quality Bermuda grass seed (April 1 – Aug 31) 30 lbs/acre of quality annual rye grass (Sept 1- March 30). Fertilize the planting of Bermuda and/or rye grass @ the rate of 500 pounds of 12-12-12 fertilizer per acre with a repeat application two to three months after planting. Following fertilization and seeding, grantee shall cover seed lightly by dragging area with a chain and mulch with 1 1/2 tons of hay mulch/acre or use an equivalent hydromulch or geotextile operation for erosion control. An Air Force inspector must be on site at time of planting and fertilizing. Any area that fails to establish vegetative cover after one month shall be replanted and fertilized immediately at the above listed rate. After well completion and at the earliest opportunity between December – February, the pit area shall be planted with advanced generation genetically superior loblolly pine seedlings. The grantee shall plant the pine seedlings on 10 X 10 foot spacing. The grantee may wait one year or until the following planting season (December – February) after the pit is closed to replant with advanced generation loblolly pine seedlings to ensure that the pit has settled and all sinkholes or erosion problems have been remediated prior to replanting.

k. Grantee will apply sufficient amounts of crushed concrete or SB-2 rock to lease access roads used to move drilling equipment to the location. Prior to drilling operations the grantee will properly grade and apply a minimum of 500 tons of crushed concrete or SB-2 rock to lease road sections as directed by BAFB Forester. Grantee will deliver weight tickets to the BAFB Forester. The Grantee will install culvert corrals at road intersections as directed by the Base Forester. Grantee will protect roads, prevent washouts and minimize silting of adjacent waters in these areas. The Grantee will adequately maintain access roads during the drilling operations and through the life of the well in accordance with directions of Barksdale AFB Natural Resources Manager or his designee.

l. Base roads may be used by the Grantee subject to the paramount right control by the Air Force. At such time as the Air Force determines that use by the Grantee has caused damage to or increased the maintenance on these roads, the Air Force and the Grantee shall agree upon appropriate compensation as a condition for continued use. If no agreement can be reached, the Air Force's determination of appropriate compensation shall be conclusive. Vehicle access to an area not serviced by an existing road is subject to approval by the BAFB Natural Resources Manager or the Asset Management Flight Chief.

m. The location of the proposed drill site falls within the exclusive jurisdiction of the federal government. Any person or persons within the jurisdiction are subject to all civil and criminal regulations enforceable by the federal government through its duly authorized agents.

n. Grantor shall not be responsible for damage to property or injuries to persons which may arise from, or be attributable or incident to, the condition or state of repair of the Premises, or its use and occupation by Grantee. Grantee agrees that it assumes all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, invitees, or others, by reason of or incident to Grantee's possession and/or use of the Premises, and the activities conducted under this Permit. Grantee shall, at its expense, settle and pay any claims arising out of the use and occupancy of the Premises and retain any recoveries from such claims; provided, however, that Grantor or another agency of the Government may, as a matter of its internal policy, assume responsibility for certain claims of that agency's personnel while assigned or detailed to the Grantee, or otherwise present on the premises.

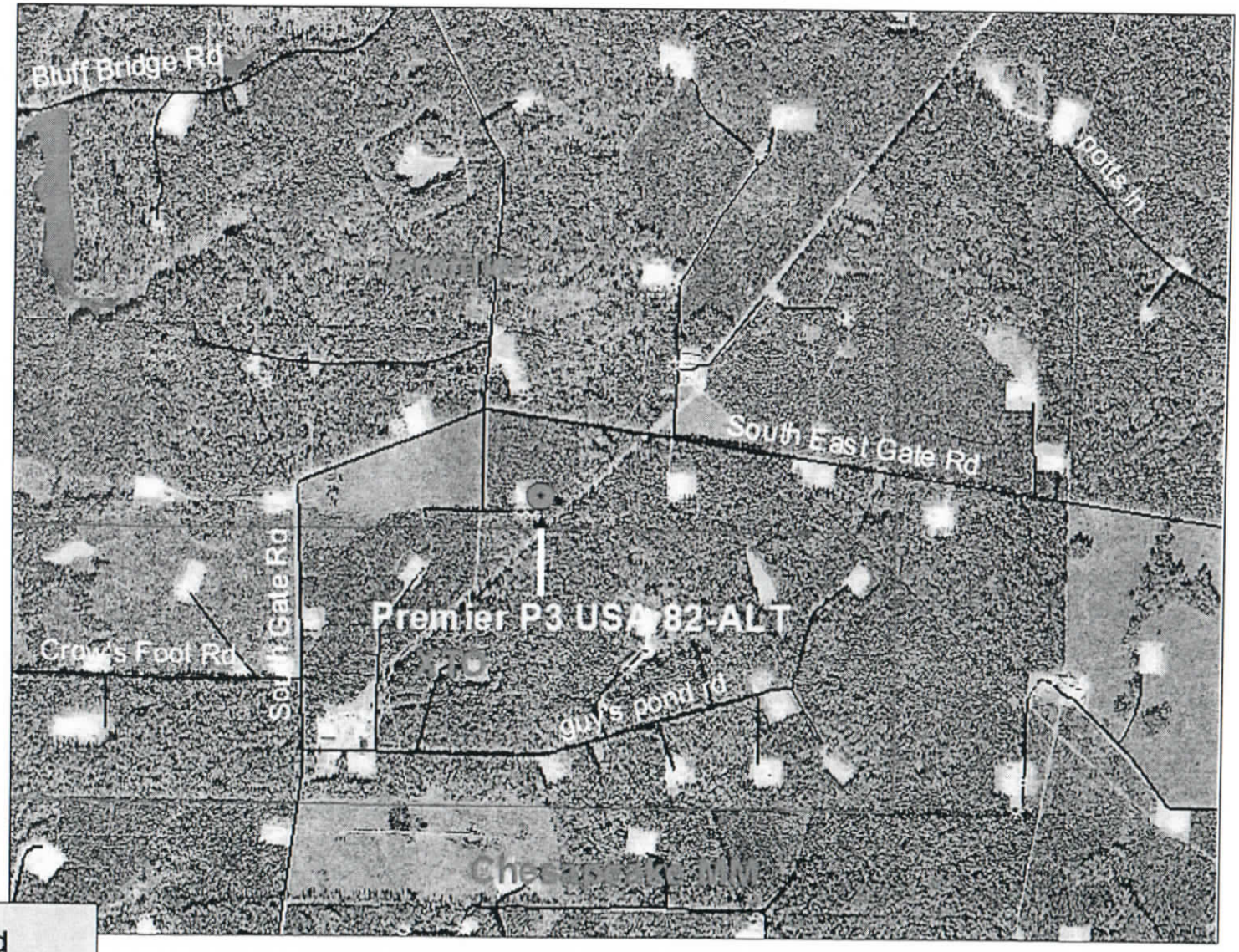
o. Grantee shall, at all times, protect, repair, and maintain the premises in good order and condition at its own expense and without cost or expense to Grantor. Any property on the premises damaged or destroyed by Grantee incident to the exercise of the privileges herein granted should be promptly repaired or replaced by Grantee to the satisfaction of Grantor. Any interference with the use of or damage to property under control of the Department of the Air Force incident to the exercise of the privileges herein granted shall be promptly corrected by Grantee to the satisfaction of Grantor. If Grantee fails to promptly repair or replace any such property, said officer may repair or replace such property and Grantee shall be liable for the costs of such repair or replacement. Any damage, such as rutting, to installation roads due to Grantee's use of the premises shall be repaired immediately to the satisfaction of Grantor by Grantee, at Grantee's sole expense.

p. The Grantee shall routinely inspect and maintain the drill site area in a neat and orderly fashion. Upon completion or abandonment of any well or drilling site, or on termination of this permit, Grantee shall remove its property therefrom, and restore the premises to their original condition. Grantor may, in its sole and absolute discretion, consent to Grantee abandoning all or part of its property and improvements on the Installation. Restoration of the premises, for purposes of this condition, shall include any remedial or removal action necessitated by the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or the Resource Conservation and Recovery Act or similar state laws applicable to the premises. If Grantee fails to perform the required removal and restoration in a timely manner, Grantor may perform the required removal and restoration in Grantee's place and Grantee shall reimburse Grantor its costs of removal and restoration.

Steven S. Vincent

STEVEN S. VINCENT, GS-14, DAF
Deputy Base Civil Engineer

Premier P3, USA 82-ALT Location Map
Sligo Field, Section 1, T17N, R12W



Legend

Gas Wells

Roads

0 0.25 0.5 1 Miles

Map Created 2-4-2014
BAFB Natural Resources

Well pad: **Premier P3 82-alt**
Date: **2/4/2014**
Acreage: **0.21**

Louisiana Timber Stumpage Prices
4th Quarter 2014

	Volume bf	Value/mbf	
Pine Sawtimber	792	$267.92	$212.19
Hardwood Saw.	96	$269.23	$25.85

	Volume cd		
Pine pulp	0.309	$24.91	$7.70
Hardwood pulp	1.665	$23.25	$38.71
			$284.45

Land Use	Acreage	$/ac/yr	years	Value ($)
Forestry	0.21	$100.00	25	$525.00
Regeneration *(if applicable)*	Acreage 0.21	$/ac/yr 100	years **0**	$0.00
Wildlife	0.21	$100.00	25	$525.00
			Total	$1,334.45

Forestry Check **$809.45**
Wildlife Check **$525.00**

	Location (pad)	Road/ROW	Total
Acres:		0	0.00

	New Disturbance
Acres:	0.21

DEPARTMENT OF THE AIR FORCE

2D CIVIL ENGINEER SQUADRON (AFGSC)
BARKSDALE AIR FORCE BASE LOUISIANA

MEMORANDUM FOR DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

FROM: 2 CES/CC
334 Davis Ave West, Ste 200
Barksdale AFB LA 71110-2078

SUBJECT: Permit to Drill Gas Well, Premier Natural Resources USA (P3) 81 ALT, Surface Management and Environmental Requirements

I, on behalf of Barksdale Air Force Base (Grantor), approve the application of Premier Natural Resources (Grantee) to drill gas well USA 81 ALT on Barksdale Air Force Base's (BAFB) East Reservation, subject to the following terms and conditions:

With regard to oil and gas development on the east reservation (reference – Surface Operating Standards for Oil and Gas Development "Gold Book"), the Grantee agrees to the following:

1. Locations selected for well sites and oilfield infrastructure will be planned so as to minimize long-term disruption of the surface resources and existing uses, and to promote successful reclamation. In addition, design and construction techniques and other practices will be employed that will minimize surface disturbance and the associated effects of proposed operations and maintain the reclamation potential of the site.

2. During well pad construction or alteration, all surface soil materials (topsoil) will be removed from the entire cut and fill area and temporarily stockpiled for reuse during interim and final reclamation. Topsoil will be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials will not be placed on top of topsoil material at any point in the operation. Stockpiles will be located and protected so that erosion is minimized and reclamation potential is maximized.

3. All commercial timber cleared for this permit will be harvested and removed from the site. Any tree located outside this permit area that may present a hazard to the existing facilities shall be pruned or felled as approved by Natural Resources. Logging slash or any tree debris shall not be pushed into the adjacent forest. If this happens the Grantee will pay double the value of trees damaged or impacted from this violation. The Grantee will reimburse the United States Air Force for forest loss on USA Alt 81. The total forest and habitat loss reimbursement totals $1,067.51 (Atch 1). For accounting purposes, it is necessary that the Grantee make this payment with two (2) checks, one issued for $717.51 to account number 57F3875.0004 31FF 667100 and one issued for $350.00 to account number 575095 31SA 667100. Both checks are to be made payable to the U S Treasury. Mail the checks to: 2 CES/CEIEA (Natural Resources Office), c/o Natural Resources Manager, 6141 Range Rd., Barksdale AFB, LA 71110-2927.

4. To prevent contamination of ground water and soils or to conserve water, the Grantee shall use a closed-loop drilling system. Upon completion of the well, hard rocked surfaces constructed for drilling and frac tanks, no longer needed for production, shall be reclaimed as noted below.

5. Depending on the proposed contents of the tanks and sensitivity of the environment, the Grantor

may require a leak detection system on the self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas.

6. Reclamation is required of any surface previously disturbed that is not necessary for continued production operations. Earthwork for interim and final reclamation generally must be completed within 6 months of well completion or plugging (weather permitting). Reclamation measures will begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

7. During the life of the development, all disturbed areas not needed for active support of production operations shall undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses. At final abandonment, well locations, power/pipelines, production facilities, and access roads must undergo final reclamation so that the character and productivity of the land and water are restored.

8. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation. Topsoil is respread over areas not needed for all-weather operations. When practical, the operator will respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

9. To achieve final reclamation of a recently drilled dry hole, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil redistributed, and the site revegetated. To achieve final reclamation of a formerly producing well, all topsoil and vegetation must be restripped from all portions of the old well site that were not previously reshaped to blend with the surrounding contour. All disturbed areas are then recontoured back to the original contour or a contour that blends with the surrounding landform, topsoil is redistributed, and the site revegetated. In recontouring areas that have been surfaced with gravel, soil cement, or similar materials, the material must be removed from the well location.

10. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The site will be prepared to provide a seedbed for reestablishment of desirable vegetation. Site preparation will include ripping, scarifying, dozer track-walking, mulching, fertilizing, seeding, and planting.

11. The operator must achieve the short-term stability, visual, hydrological, and productivity objectives of the surface management agency and take the steps necessary to ensure that long-term objectives will be reached through natural processes.

12. At abandonment, oilfield access roads must be reclaimed by the Grantee unless requested otherwise by the Grantor. Final reclamation will include removal of road base and surface materials, recontouring the road back to the original contour, seeding, controlling noxious weeds, and other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, placing water bars, mulching, redistributing woody debris, and barricading.

13. Reclamation will be judged successful when a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and to re-establish wildlife habitat or forage production. The site must be free of State- or county-listed noxious weeds, oil field debris, contaminated soil, and equipment.

14. Other facilities and areas of surface disturbance associated with Federal oil and gas lease development, including water impoundments, power/pipelines, metering buildings, compression facilities,

and tank batteries must be removed and reclaimed in accordance with the standards identified previously. In addition, the following provisions apply:

a. The Barksdale Natural Resources Manager will notify the Bureau of Land Management (BLM) when clearance to proceed is granted. The Grantee will comply with all BAFB security requirements including registration of vehicles and personnel. During 24-hour drilling and well completion operations the Grantee may be required to maintain a 24-hour security guard on the base perimeter gate being used by the Grantee's personnel.

b. The provisions contained in this permit supplement the provisions of any existing lease agreement between the parties. The provisions contained in this permit apply to any person or persons who are agents, employees, or invitees of the Grantee. The provisions further apply to independent contractors or sub-contractors and its agents, employees, and invitees who conduct business with the Grantee on, in, or above the legal boundaries of BAFB, Louisiana. Further, whether or not signed by Grantee, the provisions of this permit shall be binding and enforceable upon Grantee, and Grantee's preparation for or drilling of the gas wells contemplated by this permit shall be conclusive evidence of Grantee's acceptance of the terms and provisions of this permit.

c. The use, operation, and occupation of the premises shall be without cost or expense to the Department of the Air Force, and is subject to the general supervision and control of 2 BW/CC. In accepting this permit, Grantee recognizes the installation serves the national defense and that Grantor will not permit activities that interfere with the installation's military mission. This installation is a closed military installation and is subject to the provisions of the Internal Security Act of 1950, 50 U.S.C. §797. Access to the installation is subject to the control of its commanding officer and is governed by such regulations and orders as have been lawfully promulgated or approved by the Secretary of Defense or by any designated military commander. Any access granted to Grantee, its employees, agents, contractors, and invitees is subject to such regulations and orders. This permit is subject to all regulations and orders currently promulgated or which may be promulgated by lawful authority as well as all other conditions contained in this permit. Violation of any such regulations, orders, or conditions may result in the termination of this permit. Such regulations and orders may, by way of example and not by way of limitation, include restrictions on who may enter, how many may enter at any one time, when they may enter, and what areas of the installation they may visit. Grantee is responsible for the actions of its employees, agents, contractors, and invitees while on the installation and acting under this permit; any liability of the Grantor resulting from the actions of Grantee's employees, agents, contractors, and invitees shall be the responsibility of Grantee and Grantee shall hold Grantor harmless for any such liability and indemnify it.

d. This permit does not guarantee that the installation will remain open or active at its current level.

e. The Grantee must comply with the National Environmental Policy Act of 1969 (NEPA), as well as all regulations. The Grantee will be responsible for preparing and obtaining all permits required by all environmental agencies and regulations. Proof of compliance will be made to the BAFB Natural Resources Manager or the Installation Management Flight Chief. All notices of violation, administrative orders, fines, or special assessments resulting from any failure to comply with any applicable statute or regulation will remain the sole responsibility of the Grantee. All civil and criminal penalties resulting from violations of any environmental law or regulation will be paid by the Grantee. (This shall include any costs for restoration or rehabilitation of the environment assessed against the Grantee or lease owner by an environmental agency or court of law.)

f. Grantee must comply with all applicable laws on occupational safety and health, the handling and storage of hazardous materials, and the proper disposal of solid and hazardous wastes generated by its activities. Grantee will not bring solid or hazardous waste upon the premises. Grantee will also be

responsible for the cost of proper disposal of solid and hazardous wastes generated by its activities under this permit.

g. Grantee shall comply with all applicable environmental laws and requirements and in particular those requirements concerning the protection and enhancement of environmental quality, natural resources, pollution control and abatement, safe drinking water, and solid and hazardous waste. Responsibility for compliance with such requirements rests exclusively with Grantee.

h. The Grantee agrees to provide timely notification within 10 days, as required by the applicable environmental laws or regulations to the applicable environmental agency and the Natural Resources Manager at BAFB, Louisiana, in the event that its operations violate or fail to comply with an environmental law, order, rule, or regulation.

i. Grantee shall treat, at Grantee's sole expense, all exposed 30%+ slopes on and around the pad with a hydromulch, containing native grass seed, during and after drilling operations to minimize erosion. Further erosion control at drainage sites or areas that have the potential for high water energy may require additional measures such as silt screens, rip rap, and or hay bales to prevent rapid loss of soils. Erosion control measures must be approved by the BAFB Natural Resources Manager and maintained throughout the life of the well.

j. Grantee shall ensure that all exposed soil on the well site, pipelines, and road right-of-way not covered by gravel or road surface shall be fertilized and planted immediately (10 days) after the well pad is complete. Until disturbed areas are successfully revegetated, exposed soil shall be seeded according to the following planting rates and schedule: 15 lbs/acre of quality Bermuda grass seed (April 1 – Aug 31) 30 lbs/acre of quality annual rye grass (Sept 1- March 30). Fertilize the planting of Bermuda and/or rye grass @ the rate of 500 pounds of 12-12-12 fertilizer per acre with a repeat application two to three months after planting. Following fertilization and seeding, grantee shall cover seed lightly by dragging area with a chain and mulch with 1 1/2 tons of hay mulch/acre or use an equivalent hydromulch or geotextile operation for erosion control. An Air Force inspector must be on site at time of planting and fertilizing. Any area that fails to establish vegetative cover after one month shall be replanted and fertilized immediately at the above listed rate. After well completion and at the earliest opportunity between December – February, the pit area shall be planted with advanced generation genetically superior loblolly pine seedlings. The grantee shall plant the pine seedlings on 10 X 10 foot spacing. The grantee may wait one year or until the following planting season (December – February) after the pit is closed to replant with advanced generation loblolly pine seedlings to ensure that the pit has settled and all sinkholes or erosion problems have been remediated prior to replanting.

k. Grantee will apply sufficient amounts of crushed concrete or SB-2 rock to lease access roads used to move drilling equipment to the location. Prior to drilling operations the grantee will properly grade and apply a minimum of 500 tons of crushed concrete or SB-2 rock to lease road sections as directed by BAFB Forester. Grantee will deliver weight tickets to the BAFB Forester. The Grantee will install culvert corrals at road intersections as directed by the Base Forester. Grantee will protect roads, prevent washouts and minimize silting of adjacent waters in these areas. The Grantee will adequately maintain access roads during the drilling operations and through the life of the well in accordance with directions of Barksdale AFB Natural Resources Manager or his designee.

l. Base roads may be used by the Grantee subject to the paramount right control by the Air Force. At such time as the Air Force determines that use by the Grantee has caused damage to or increased the maintenance on these roads, the Air Force and the Grantee shall agree upon appropriate compensation as a condition for continued use. If no agreement can be reached, the Air Force's determination of appropriate compensation shall be conclusive. Vehicle access to an area not serviced by an existing road is subject to approval by the BAFB Natural Resources Manager or the Asset Management Flight Chief.

m. The location of the proposed drill site falls within the exclusive jurisdiction of the federal government. Any person or persons within the jurisdiction are subject to all civil and criminal regulations enforceable by the federal government through its duly authorized agents.

n. Grantor shall not be responsible for damage to property or injuries to persons which may arise from, or be attributable or incident to, the condition or state of repair of the Premises, or its use and occupation by Grantee. Grantee agrees that it assumes all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, invitees, or others, by reason of or incident to Grantee's possession and/or use of the Premises, and the activities conducted under this Permit. Grantee shall, at its expense, settle and pay any claims arising out of the use and occupancy of the Premises and retain any recoveries from such claims; provided, however, that Grantor or another agency of the Government may, as a matter of its internal policy, assume responsibility for certain claims of that agency's personnel while assigned or detailed to the Grantee, or otherwise present on the premises.

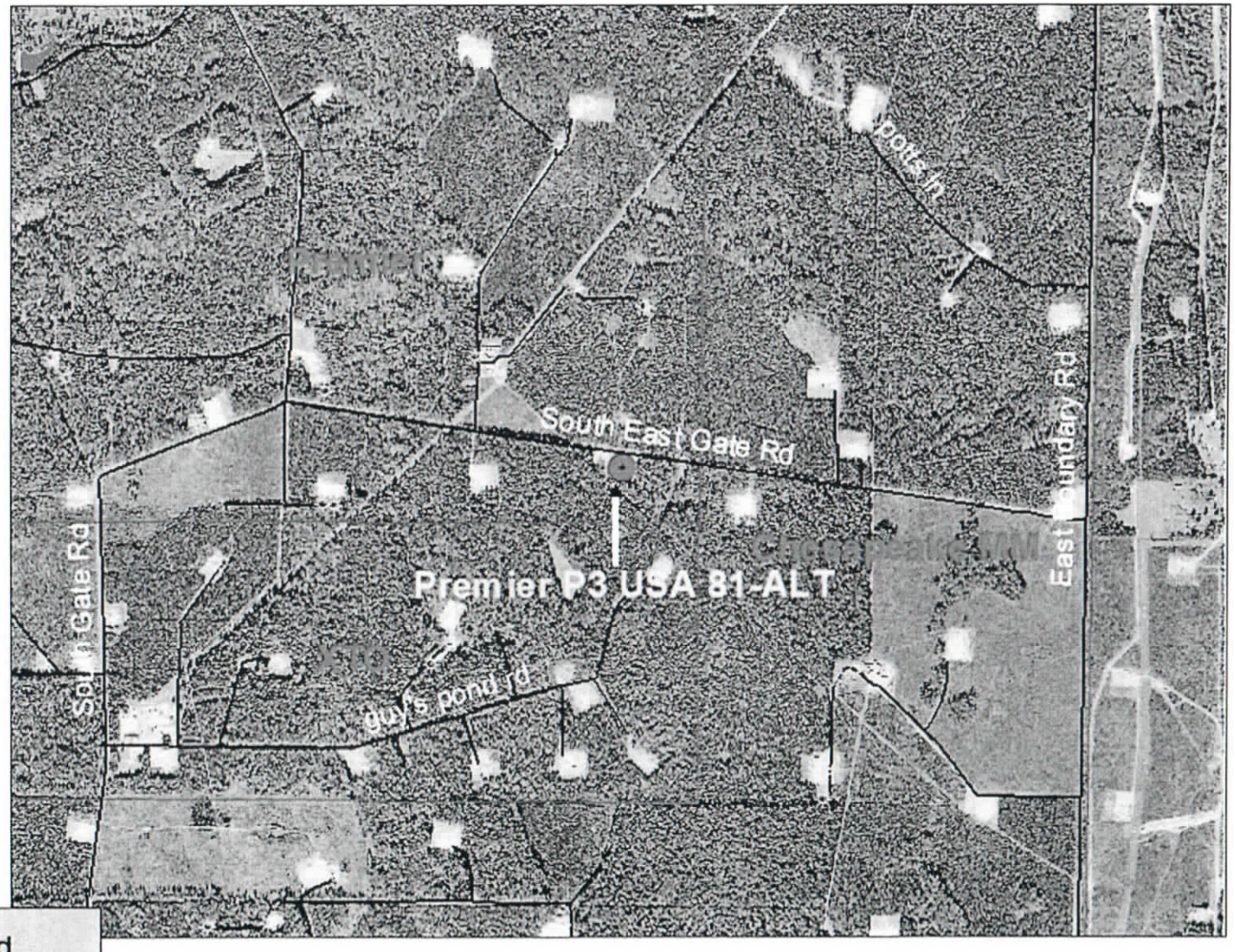
o. Grantee shall, at all times, protect, repair, and maintain the premises in good order and condition at its own expense and without cost or expense to Grantor. Any property on the premises damaged or destroyed by Grantee incident to the exercise of the privileges herein granted should be promptly repaired or replaced by Grantee to the satisfaction of Grantor. Any interference with the use of or damage to property under control of the Department of the Air Force incident to the exercise of the privileges herein granted shall be promptly corrected by Grantee to the satisfaction of Grantor. If Grantee fails to promptly repair or replace any such property, said officer may repair or replace such property and Grantee shall be liable for the costs of such repair or replacement. Any damage, such as rutting, to installation roads due to Grantee's use of the premises shall be repaired immediately to the satisfaction of Grantor by Grantee, at Grantee's sole expense.

p. The Grantee shall routinely inspect and maintain the drill site area in a neat and orderly fashion. Upon completion or abandonment of any well or drilling site, or on termination of this permit, Grantee shall remove its property therefrom, and restore the premises to their original condition. Grantor may, in its sole and absolute discretion, consent to Grantee abandoning all or part of its property and improvements on the Installation. Restoration of the premises, for purposes of this condition, shall include any remedial or removal action necessitated by the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or the Resource Conservation and Recovery Act or similar state laws applicable to the premises. If Grantee fails to perform the required removal and restoration in a timely manner, Grantor may perform the required removal and restoration in Grantee's place and Grantee shall reimburse Grantor its costs of removal and restoration.

Steven S. Vincent

STEVEN S. VINCENT, GS-14, DAF
Deputy Base Civil Engineer

Premier P3, USA 81-ALT Location Map
Sligo Field, Section 1, T17N, R12W



Map Created 2-4-2014
BAFB Natural Resources

Well pad: **Premier P3 81-alt**
Date: **2/4/2014**
Acreage: **0.14**

Louisiana Timber Stumpage Prices
4th Quarter 2014

	Volume bf	Value/mbf	
Pine Sawtimber	1343	$267.92	$359.82
Hardwood Saw.	0	$269.23	$0.00

	Volume cd		
Pine pulp	0.309	$24.91	$7.70
Hardwood pulp	0.000	$23.25	$0.00
			$367.51

Land Use	Acreage	$/ac/yr	years	Value ($)
Forestry	0.14	$100.00	25	$350.00
Regeneration *(if applicable)*	Acreage 0.14	$/ac/yr 100	years **0**	$0.00
Wildlife	0.14	$100.00	25	$350.00
			Total	$1,067.51

Forestry Check **$717.51**
Wildlife Check **$350.00**

	Location (pad)	Road/ROW	Total
Acres:		0	0.00

	New Disturbance
Acres:	0.14

APPENDIX C

Correspondence

ENGINEERS · SURVEYORS
ENVIRONMENTAL CONSULTANTS

This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act). The project, as proposed,
( ) Will have no effect on those resources
(✓) Is not likely to adversely affect those resources.
This finding fulfills the requirements under Section 7(a)(2) of the Act.

Acting Supervisor
Louisiana Field Office
U.S. Fish and Wildlife Service

Oct 30, 2013
Date

BIOLOGICAL ASSESSMENT

PREMIER NATURAL RESOURCES II, LLC
USA (PARCEL 3) 81H-ALT
SECTION 1: T17N-R12W
BOSSIER PARISH, LOUISIANA
FIELD VISIT: JULY 9, 2013

Prepared: August 15, 2013

Introduction

C.H. Fenstermaker and Associates, LLC (Fenstermaker) conducted a field survey of the proposed project area on July 9, 2013, to assess potential project-related impacts to federal listed threatened, endangered, and candidate species, and natural resources in the project area. The project site is located on the Barksdale Air Force Base, approximately 6.5 miles easterly from Bossier City, in Section 1: T17N-R12W, Bossier Parish, Louisiana [**Figure 1**]. The project entails clearing and construction of an approximate 40' X 300' well pad expansion to drill the USA Parcel 3-81H-ALT Well [**Figure 2**]. Construction of the proposed project would remove 0.28 acres of upland pine forest.

Current state and federal lists of rare, threatened, endangered and candidate species were reviewed with regards to potential impacts from construction of the subject project. Infrared aerial photography, the National Resources Conservation Service (NRCS) *Soils Survey for Bossier Parish*, and websites for the U.S. Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries (LDWF) were accessed to prepare this Biological Assessment (BA). This BA documents habitat in the vicinity of the project site and provides an assessment of potential effects to listed species and environmental resources within the vicinity of the project area. A determination of effects to federal listed species has been provided under each species account below and is presented in **Table 1**. In summary, construction of the proposed project is not likely to adversely affect federal listed species.

Table 1: Summary of Effects

Species	Federal Status	Determination	Rationale
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	No Effect	Outside of range
Interior Least Tern (*Sternula antillarum*)	Endangered	No Effect	Outside of range
Red-cockaded Woodpecker (*Picoides borealis*)	Endangered	Not Likely to Adversely Affect	No RCW in the Area
Sprague's Pipit (*Anthus spragueii*)	Candidate	No Effect	No suitable habitat

FENSTERMAKER

ENGINEERS · SURVEYORS
ENVIRONMENTAL CONSULTANTS

This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act). The project, as proposed,
(✓) Will have no effect on those resources
( ) Is not likely to adversely affect those resources.
This finding fulfills the requirements under Section 7(a)(2) of the Act.

Acting Supervisor
Louisiana Field Office
U.S. Fish and Wildlife Service

Date Oct 30, 2013

BIOLOGICAL ASSESSMENT

PREMIER NATURAL RESOURCES
USA (PARCEL 3) 82H-ALT
SECTION 1: T17N-R12W
BOSSIER PARISH, LOUISIANA
FIELD VISIT: JUNE 26, 2013

Prepared: August 1, 2013

Introduction

C.H. Fenstermaker and Associates, LLC (Fenstermaker) conducted a field survey of the proposed project area on June 26, 2013, to assess potential project-related impacts to federal listed threatened, endangered, and candidate species, and natural resources in the project area. The project site is located on the Barksdale Air Force Base, approximately 10 miles southeasterly from Bossier City, in Section 1: T17N-R12W, Bossier Parish Louisiana [**Figure 1**]. The project entails clearing and construction of an approximate 40' X 268' well pad expansion to drill the USA (Parcel 3) 82H-ALT well [**Figure 2**]. Construction of the proposed project would impact approximately 0.25 acres of mixed hardwood-pine.

Current state and federal lists of rare, threatened, endangered, and candidate species were reviewed with regards to potential impacts from construction of the subject project. Infrared aerial photography, the National Resources Conservation Service (NRCS) *Soils Survey for Bossier Parish*, and websites for the U.S. Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries (LDWF) were accessed to prepare this Biological Assessment (BA). This BA documents habitat in the vicinity of the project site and provides an assessment of potential effects to listed species and environmental resources within the vicinity of the project area. A determination of effects to federal listed species has been provided under each species account below and is presented in **Table 1**. In summary, construction of the proposed project would have no effect on federal listed species.

FENSTERMAKER

ENGINEERS SURVEYORS
ENVIRONMENTAL

This project has been reviewed for effects to Federal trust re
under our jurisdiction and currently protected by the Endu
Species Act of 1973 (Act). The project, as proposed,
(✓) Will have no effect on those resources
( ) is not likely to adversely affect those resources.
This finding fulfills the requirements under Section 7(a)(2)

Acting Supervisor
Louisiana Field Office
U.S. Fish and Wildlife Service

Oct 30 2013
Date

BIOLOGICAL ASSESSMENT

PREMIER NATURAL RESOURCES
USA (PARCEL 3) 83, 84, AND 85H-ALT FLOWLINE
SECTION 2: T17N-R12W
BOSSIER PARISH, LOUISIANA
FIELD VISIT: JUNE 26, 2013

Prepared: August 2, 2013

Introduction

C.H. Fenstermaker and Associates, LLC (Fenstermaker) conducted a field survey of the proposed project area on June 26, 2013, to assess potential project-related impacts to federal listed threatened and endangered species and natural resources in the project area. The project site is located on the Barksdale Air Force Base, approximately 10 miles southeasterly from Bossier City, in Section 2: T17N-R12W, Bossier Parish Louisiana [**Figure 1**]. The project entails the drilling of three (3) horizontal wells utilizing an existing, previously authorized access road and drill pad, and a proposed pipeline. Installation of the proposed pipeline (± 1,280') will require clearing a 15' right-of-way (ROW) on the north side of the existing access road [**Figure 2**]. The pipeline will be buried immediately adjacent to the toe of the existing access road. The proposed ROW encompasses approximately 0.76 acres [uplands (0.68 acres) and wetlands (0.08 acres)], of a predominantly hardwood tract, with a small percentage of pine and open herbaceous.

Current state and federal lists of rare, threatened, endangered, and candidate species were reviewed with regards to potential impacts from construction of the subject project. Infrared aerial photography, the National Resources Conservation Service (NRCS) *Soils Survey for Bossier Parish*, and websites for the U.S. Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries (LDWF) were accessed to prepare this Biological Assessment (BA). This BA documents habitat in the vicinity of the project site and provides an assessment of potential effects to listed species and environmental resources within the vicinity of the project area. A determination of effects to federal listed species has been provided under each species account below and is presented in **Table 1**. In summary, no federal listed species would be affected by the project.

FENSTERMAKER

ENGINEERS SURVEYORS
ENVIRONMENTAL CONSULTANTS

This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act). The project, as proposed,
( ) Will have no effect on these resources.
(✓) Is not likely to adversely affect these resources.
This finding fulfills the requirements under Section 7(e)(2) of the Act.

Deborah A Fuller Oct 30, 2013
Acting Supervisor Date
Louisiana Field Office
U.S. Fish and Wildlife Service

BIOLOGICAL ASSESSMENT

PREMIER NATURAL RESOURCES II, LLC
USA (PARCEL 3) 86H-ALT
SECTION 3: T17N-R12W
BOSSIER PARISH, LOUISIANA
FIELD VISIT: JULY 9, 2013

Prepared: August 16, 2013

Introduction

C.H. Fenstermaker and Associates, LLC (Fenstermaker) conducted a field survey of the proposed project area on July 10, 2013, to assess potential project-related impacts to federal listed threatened, endangered, and candidate species, and natural resources in the project area. The project site is located on the Barksdale Air Force Base, approximately 5 miles east of Bossier City, in Section 3: T17N-R12W, Bossier Parish, Louisiana [**Figure 1**]. The project entails clearing and construction of an approximate 40' X 300' well pad expansion to drill the USA Parcel 3-86H-ALT Well [**Figure 2**]. Construction of the proposed project would remove 0.28 acres of upland pine forest.

Current state and federal lists of rare, threatened, endangered, and candidate species were reviewed with regards to potential impacts from construction of the subject project. Infrared aerial photography, the National Resources Conservation Service (NRCS) *Soils Survey for Bossier Parish*, and websites for the U.S. Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries (LDWF) were accessed to prepare this Biological Assessment (BA). This BA documents habitat in the vicinity of the project site and provides an assessment of potential effects to listed species and environmental resources within the vicinity of the project area. A determination of effects to federal listed species has been provided under each species account below and is presented in **Table 1**. In summary, construction of the proposed project is not likely to adversely affect federal listed species.

Table 1: Summary of Effects

Species	Federal Status	Determination	Rationale
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	No Effect	Outside of range
Interior Least Tern (*Sternula antillarum*)	Endangered	No Effect	Outside of range
Red-cockaded Woodpecker (*Picoides borealis*)	Endangered	Not Likely to Adversely Affect	No RCW in the Area
Sprague's Pipit (*Anthus spragueii*)	Candidate	No Effect	No suitable habitat

SHPO Responses

Billie Jones <bjones@crt.la.gov> Fri, Oct 11, 2013 at 1:54 PM
To: John_M_Sullivan@blm.gov

Billie M. Jones

Project Developer

Office of Cultural Development

Department of Culture, Recreation and Tourism

P.O. Box 44247

Baton Rouge, LA 70802

225.342.6931

bjones@crt.la.gov

2 attachments

EASTWOOD - WELLS 3-81, 3-82 & 3-86.pdf
470K

EASTWOOD - WELLS 3-83, 3-84 & 3-85.pdf
485K

United States Department of the Interior

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

IN REPLY REFER TO:
8160 (020) JMS USA #3-81H-Alt, USA #3-82H-Alt and USA #3-86H-Alt

Sept. 18, 2013

Ms. Pam Breaux
State Historic Preservation Officer
Louisiana Office of Cultural Development
P.O. Box 44247
Baton Rouge, LA 70804-44247

No known historic properties will be affected by this undertaking. This effect determination could change should new information come to our attention.

Pam Breaux 10-10-13
Pam Breaux Date
State Historic Preservation Officer

Dear Mr. Hutcheson:

The Bureau of Land Management (BLM) has received three Applications for Permit to Drill (APD's) from Premier Natural Resources. All three well pads are on federal surface and were constructed in 2007. These wells will access federal minerals. The legal location of the proposed wells is as follows (map enclosed):

Bossier Parish (Eastwood Quadrangle)
USA #3-81H-Alt: T. 17 N., R 12 W., Sec. 1, SHL: 652` FSL & 821` FEL
USA #3-82H-Alt: T. 17 N., R 12 W., Sec. 1, SHL: 440` FSL & 1,5441 FWL
USA #3-86H-Alt: T. 17 N., R 12 W., Sec. 3, SHL: 703` FNL & 447` FEL

The project areas have been surveyed by Deep East Texas Archaeological Consultants; their report should be on file at your office. No archaeological or National Register eligible properties were identified within the proposed project area. The BLM accepts Deep East Texas Archaeological Consultants report and will not require additional archeological work before approval of this permitting action.

However, a stipulation covering accidental discovery and avoidance of known sites will be included as a condition of approval in the permitting documents. If additional work outside the

SHPO Responses

Billie Jones <bjones@crt.la.gov> Fri, Oct 11, 2013 at 1:54 PM
To: John_M_Sullivan@blm.gov

Billie M. Jones

Project Developer

Office of Cultural Development

Department of Culture, Recreation and Tourism

P.O. Box 44247

Baton Rouge, LA 70802

225.342.6931

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United States Department of the Interior

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

IN REPLY REFER TO:
8160 (020) JMS USA #3-83H-Alt, USA #3-84H-Alt and USA #3-85H-Alt

Sept. 19, 2013

Ms. Pam Breaux
State Historic Preservation Officer
Louisiana Office of Cultural Development
P.O. Box 44247
Baton Rouge, LA 70804-44247

No known historic properties will be affected by this undertaking. This effect determination could change should new information come to our attention.

Pam Breaux 10-10-13
Pam Breaux Date
State Historic Preservation Officer

Dear Mr. Hutcheson:

The Bureau of Land Management (BLM) has received three Applications for Permit to Drill (APD's) from Premier Natural Resources. All three wells are on the same pad and on federal surface. The pad was constructed in 2007. These wells will access federal minerals. The legal location for the proposed wells is as follows (map enclosed):

Bossier Parish (Eastwood Quadrangle)
USA #3-83H-Alt: T. 17 N., R 12 W., Sec. 2, SHL: 430` FSL & 375` FEL
USA #3-84H-Alt: T. 17 N., R 12 W., Sec. 2, SHL: 431` FSL & 2,420 FWL
USA #3-85H-Alt: T. 17 N., R 12 W., Sec. 2, SHL: 432` FNL & 2,465` FEL

The project area has been surveyed by Deep East Texas Archaeological Consultants; their report should be on file at your office. No archaeological or National Register eligible properties were identified within the proposed project area. The BLM accepts Deep East Texas Archaeological Consultants report and will not require additional archeological work before approval of this permitting action.

However, a stipulation covering accidental discovery and avoidance of known sites will be included as a condition of approval in the permitting documents. If additional work outside the

RE: Barksdale 81H 82H 86H APDs Bossier Parish LA

Johnnie L. Jacobs <jjacobs@choctawnation.com> Sat, Oct 26, 2013 at 8:11 PM
To: "Sullivan, John" <j35sullivan@blm.gov>

Dear John,

Thank you for the correspondence regarding the above referenced project. The Choctaw Nation of Oklahoma is unaware of any Choctaw cultural or sacred sites located within the immediate project area. We concur that there should be no effects to any known historic properties and that work should proceed as planned. However, as the project is located in an area that is of general historic interest to the Tribe, we request that work be stopped and our office contacted immediately if any Native American cultural materials are encountered. This stipulation should be placed on the construction plans to insure contractors are aware of it. Please feel free to contact me with any further questions or concerns.

Thank you,

Ms. Johnnie Jacobs

NHPA Section 106 Coordinator

Choctaw Nation of Oklahoma

Historic Preservation Department

P.O. Box 1210

Durant, OK 74701

jjacobs@choctawnation.com

From: Sullivan, John [mailto:j35sullivan@blm.gov]
Sent: Friday, September 20, 2013 6:39 AM
To: Ian Thompson; Johnnie L. Jacobs
Subject: Barksdale 81H 82H 86H APDs Bossier Parish LA

Thanks

RE: Barksdale 83H 84H 85H APDs Bossier Parish LA

Johnnie L. Jacobs <jjacobs@choctawnation.com> Sat, Oct 26, 2013 at 8:12 PM
To: "Sullivan, John" <j35sullivan@blm.gov>

Dear John,

Thank you for the correspondence regarding the above referenced project. The Choctaw Nation of Oklahoma is unaware of any Choctaw cultural or sacred sites located within the immediate project area. We concur that there should be no effects to any known historic properties and that work should proceed as planned. However, as the project is located in an area that is of general historic interest to the Tribe, we request that work be stopped and our office contacted immediately if any Native American cultural materials are encountered. This stipulation should be placed on the construction plans to insure contractors are aware of it. Please feel free to contact me with any further questions or concerns.

Thank you,

Ms. Johnnie Jacobs

NHPA Section 106 Coordinator

Choctaw Nation of Oklahoma

Historic Preservation Department

P.O. Box 1210

Durant, OK 74701

jjacobs@choctawnation.com

From: Sullivan, John [mailto:j35sullivan@blm.gov]
Sent: Friday, September 20, 2013 7:16 AM
To: Ian Thompson; Johnnie L. Jacobs
Subject: Barksdale 83H 84H 85H APDs Bossier Parish LA

Thanks

APPENDIX D

References

References Cited:

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

2. U.S. Fish and Wildlife Service (USFWS), Southeast Region. http://www.fws.gov/southeast/

3. United States Department of Agriculture. 2007. Nonindigenous Species List – Louisiana. Southeast Ecological Science Center.

4. U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern. http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf

5. Hamel, P. 1992. The Land Manager's Guide to the Birds of the South. http://www.srs.fs.usda.gov/pubs/2702 http://www.srs.fs.usda.gov/pubs/gtr/gtr_se022.pdf

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

7. Louisiana Department of Environmental Quality (LDEQ). http://www.deq.louisiana.gov/portal/

8. State of Louisiana Office of Cultural Development, Division of Historic Preservation. http://www.crt.state.la.us/hp/

9. USDA NRCS Official Soil Series Descriptions (OSD). https://soilseries.sc.egov.usda.gov/

10. Galan, Victor Ph.D. A Report OF Negative Findings and Impact Evaluation for Premier Natural Resources USA Parcecl 3-83H-Alt, 3-84H-Alt, 3-85H-Alt Well Pad and Pipeline Phase I Cultural Resources s Survey Bossier Parish Louisiana. Project Number 497. July 2013. Deep East Texas Archaeological Consultants, Nacogdoches, Texas.

11. Galan, Victor Ph.D. A Report OF Negative Findings and Impact Evaluation for Premier Natural Resources USA Parcecl 3-82H-Alt Well Pad Phase I Cultural Resources s Survey Bossier Parish Louisiana. Project Number 498. July 2013. Deep East Texas Archaeological Consultants, Nacogdoches, Texas.

12. Galan, Victor Ph.D. A Report OF Negative Findings and Impact Evaluation for Premier Natural Resources USA Parcecl 3-81H-Alt Well Pad Phase I Cultural Resources s Survey Bossier Parish Louisiana. Project Number 499. July 2013. Deep East Texas Archaeological Consultants, Nacogdoches, Texas.

13. Galan, Victor Ph.D. A Report OF Negative Findings and Impact Evaluation for Premier Natural Resources USA Parcecl 3-86H-Alt Well Pad Phase I Cultural Resources s Survey Bossier Parish Louisiana. Project Number 500. July 2013. Deep East Texas Archaeological Consultants, Nacogdoches, Texas.

14. Geoscience News and Information. Geology.com http://geology.com/articles/

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" (SUCOA), 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 USA Parcel 3 #81H-Alt through USA Parcel 3 #86H-Alt APDs submitted by Premier Natural Resources, LLC in Bossier Parish, Louisiana on BAFB to flow natural gas produced from BLM's federal oil and gas lease: LABLMA-54491. 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 SUCOA. Premier Natural Resources, LLC will adhere and follow said SUCOAs from BAFB and BLM for all 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 six APDs submitted to BLM by Premier Natural Resources, LLC.

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: 10-24-2014