

**United States Department of the Interior  
Bureau of Indian Affairs - Osage Agency**



**FINAL ENVIRONMENTAL ASSESSMENT**

Proposed Oil and Gas Development on the Osage Mineral Estate  
Osage County, Oklahoma

Well(s), Access Road(s), Flowline/Utility Corridors and Tank Battery (if needed)

Well Name	Township	Range	Section

<Month><Year>

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## Abbreviations and Acronyms

ABB	American Burying Beetle
APD	Application for Permit to Drill
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BMP	Best Management Practice
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
EA	Environmental Assessment
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutants
ICP	Industry Conservation Plan
IPaC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OAS	Oklahoma Archeological Survey
ODWC	Oklahoma Department of Wildlife Conservation
ODEQ	Oklahoma Department of Environmental Quality
ONPD	Osage Nation Police Department
OSHA	Occupational Safety and Health Administration
PHMSA	Pipeline and Hazardous Materials Safety Administration
RCRA	Resource Conservation and Recovery Act
OME	Osage Nation Mineral Estate
ROW	Right of Way
SARA	Superfund Amendments and Reauthorization Act
SPCC	Spill Prevention, Control, and Countermeasures Plan
THPO	Tribal Historic Preservation Officer
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDW	Underground Source of Drinking Water
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound

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## 1.0 INTRODUCTION

### 1.1 Background

In the 1880s, the Osage Tribe purchased 1,469,077 acres of land from the Cherokee Indians, and this area, now known as Osage County, Oklahoma, became the new homeland of the Osage Nation. Prior to statehood, the U.S. Congress passed the Act of June 28, 1906 (“1906 Act”) providing for allotment of the Osage Nation’s lands to individual Tribe members. The 1906 Act, as amended, severed the surface estate of the Osage lands from the subsurface mineral estate (“Osage Mineral Estate”) and reserved the oil, gas, coal, and other minerals to the Osage Nation in perpetuity. Accordingly, the United States holds the Osage Mineral Estate in trust for the benefit of the Osage Nation. The 1906 Act authorizes the Osage Nation to lease the Osage Mineral Estate for oil and gas exploration and development subject to the approval of the Secretary of Interior and under such rules and regulations as he may provide. The regulations governing leasing of the Osage Mineral Estate for oil and gas mining are set forth in 25 C.F.R. Part 226. (BIA 2020)

The Osage Mineral Estate underlies all of present-day Osage County, Oklahoma. (Figure 1-1). The Osage Nation’s tribal headquarters, the county seat, and the Osage Agency, Bureau of Indian Affairs (BIA) are all located in Pawhuska. Much of Osage County is rural and sparsely populated. The population includes a relatively high percentage (14.12%) of Native Americans (mostly Osage) compared to the state average (8.2%). The typical landscape of Osage County is characterized by gently rolling hills of native grassland and woods, used primarily for cattle grazing and dotted with oil and gas wells and associated structures.

Osage County is one of the leading oil and gas producing counties in the state of Oklahoma. The availability of energy resources underlying Osage County, the national demand for energy, and the improvement of petroleum extraction technologies, have combined to make the Osage Mineral Estate a valuable asset for both the Osage Nation and the local economy. Oil and gas development in Osage County began in 1896 when the first oil and gas lease was obtained by Edwin B. Foster of Rhode Island, with the first oil well spud in 1897. Since that time, the Osage Mineral Estate has been repetitively leased for mineral development, parts of it more than four or five times. Accordingly, today there are large numbers of active and inactive wells in Osage County.

### 1.2 Purpose, Need, and Decision to be Made

#### Purpose

“**Company, LLC**” (hereinafter referred to as “Company” or “Applicant”) is proposing new oil and gas development within the Osage Mineral Estate consisting of <# of wells> oil and gas wells, tank battery (if necessary), access roads, and flowline/utility corridors to service the proposed wells. The proposed development includes constructing the well pads, access roads, and utility corridors. Table 1-1 (see Appendix F) lists the location for the proposed new wells. The proposed wells are to be located on a valid, existing oil and/or gas lease held by “Company.” Figure 1-2 (see Appendix G) depicts the general location of the wells to be developed.

The BIA Osage Agency is the federal agency with responsibility for administering leasing and development of the Osage Mineral Estate. The purpose of this site-specific Environmental

Assessment (EA) is to determine whether BIA should take federal action to approve “Company’s” proposal to drill the new wells listed in Table 1-1 (Appendix G).

On October 16, 2020 the BIA Eastern Oklahoma Regional Office published the Final Osage County Oil and Gas Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321, *et seq.*, to guide the management of oil and gas resources within the planning area. The EIS is a programmatic document that allows the BIA to streamline the NEPA review process for the approval of oil and gas leases, drilling permits, and workover permits by replacing the existing Programmatic Environmental Assessments for Leasing Activities (2014) and Workover Operations (2015) with a single document that serves as the BIA’s NEPA review for all oil and gas development activities that do not require new ground disturbance. The EIS also streamlines the NEPA process by providing comprehensive impacts analysis the BIA and lessees can tier from in site-specific EAs for drilling and workover operations involving new ground disturbance. (ROD 2020)

This EA is tiered to and incorporates by reference, Alternative 2 – Modified, of the Osage County Oil and Gas Environmental Impact Statement (EIS), as described in the Record of Decision (ROD), December 15, 2020.

This site-specific Environmental Assessment addresses potential impacts associated with the following potential actions by BIA:

- Approval of Application for Permit to Drill
- Approval of Request for Exemption from location requirements (if necessary dependent upon site-specific considerations)
- If needed, BIA will set the route for ingress/egress roads

In order to assess reasonably foreseeable future impacts, this EA will also consider activities associated with the Proposed Action that do not require separate permits or approvals from BIA Osage Agency, although these activities may be subject to federal and/or other requirements (*e.g.*, use of temporary drilling pits; the installation of utility corridors; oil, gas, and water gathering pipelines; electric and other utility lines; and temporary use of freshwater sources).

This EA does not include an analysis of all potential future activities associated with the new wells, such as workovers and plugging actions which require a separate permit. A separate NEPA review will be performed for such future activities as the need arises. The NEPA analysis for these activities may include preparation of supplements to this EA and/or preparation of a document that tiers to and incorporates by reference Alternative 2 – Modified, of the Osage County Oil and Gas EIS as described in the ROD.

### Need

The lease(s) upon which the proposed wells will be drilled was/were executed by “Company” and the Osage Nation, and approved by the BIA Osage Agency Superintendent, in contemplation of future oil and gas development operations thereon. The need for “Company’s” proposed oil and gas development operations, and the associated federal actions by BIA, is to develop the lease(s) in accordance with the terms and conditions thereof and the regulations in 25 C.F.R. Part 226. Consistent with these obligations, “Company” has committed resources to, and made financial

investments in, developing the lease(s) and producing oil and/or gas from the Osage Mineral Estate.

“Company” needs to engage in development to obtain a return on its investment and generate income from the Osage Mineral Estate for the benefit of the Osage Nation. Responsible and reasonable development of these mineral resources in compliance with applicable laws and regulations is consistent with the BIA’s dual mission to promote leasing and development of the Osage Mineral Estate and conserve Tribal trust resources.

### Decision to be Made

This EA analyzes potential impacts to the human environment for:

- 1) The No Action Alternative (described fully in Section 3.1), and
- 2) The Proposed Action (described in Section 3.2)

If this EA finds that the Proposed Action will not result in significant negative consequences, the BIA will prepare a Finding of No Significant Impact and the Proposed Action may proceed. A drilling permit would be issued by BIA, with appropriate conditions, for the new well at the location described in Table 1-1 (Appendix F) of this EA. BIA will also determine whether any exemptions are necessary, and whether they should be granted, with respect to location requirements for the new wells. If the wells produce, long term operations would likely continue for many years to come. The Applicant would be required to undertake all activities in accordance with the terms and conditions of approved permits, leases, regulations, and laws.

If this EA identifies significant adverse impacts because of the effects of the Proposed Action, then the BIA must prepare an environmental impact statement (EIS) to comply with NEPA. Until such an EIS is prepared, the Applicant would not be allowed to drill new wells at the specified locations on their existing leases.

### 1.3 Identification of Issues

The BIA identified issues relevant to the proposed action based on public scoping for the Osage County Oil & Gas EIS, public comments submitted on the Draft and Final Osage County Oil & Gas EIS, “Company’s” discussions with the surface owner(s) and other interested parties regarding the proposed action, public comments submitted on the prior Programmatic EAs for Leasing and Workover Operations, surface owner and other complaints documented in the Osage Agency’s tracking system, review of issues raised during monthly meetings with the Osage Minerals Council, and experience administering the Osage Mineral Estate. The issues include:

1. What potential effects will the proposed action have on livestock and wildlife due to the installation of electric and flow lines, habitat disturbance, and accidental spills or releases?
2. What potential effects will the proposed action have on watering places for livestock and other surface waters in the event of accidental spills or releases?
3. What potential effects will the proposed action have on drinking water?
4. What potential effects will the proposed action have on known and newly discovered artifacts or areas of cultural, paleontological, and archeological significance?



5. What potential effect will the proposed action have on federally listed endangered or threatened species that may be present within the project area?
6. What potential effects will the proposed action have on fugitive dust, visual and noise disturbances, and traffic on access roads?
7. What potential effects will the proposed action have on tribal, state, and local economies?

[Lessee, please list any additional issues identified during discussions with surface owners and other interested parties to the list]

## 2.0 FEDERAL STATUTES, REGULATIONS AND OTHER AUTHORITIES

Refer to the Osage County Oil and Gas EIS, Sections 1.4, 2.1, 3.10.1, 3.18.1, and 3.18.2 for the full description of applicable federal statutes, regulations, and other authorities.

## 3.0 PROPOSED ACTION AND THE NO ACTION ALTERNATIVE

NEPA requires federal agencies such as BIA to “study, develop, and describe appropriate alternatives to the recommended course of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources...” (NEPA Sec. 102(2)(e)). Developing a range of alternatives allows for exploration of options designed to meet the purpose of and need for the action. For this EA, the BIA analyzes and describes the impacts associated under two different alternatives: the “No Action Alternative” and the “Proposed Action Alternative”.

### 3.1 Alternative A – The No Action Alternative

Under the No Action Alternative, the access roads, well pads, wells, gathering pipelines, and electric and fiber optic lines described in the Proposed Action would not be constructed, drilled, installed, or operated. The BIA would not approve new APDs for the proposed well locations. There would be no project-related ground disturbance, use of hazardous materials, or trucking of product to collection areas. In addition, neither “Company,” nor the Osage Nation, would realize potential financial gains from development of mineral resources at the proposed well locations.

Under the No Action Alternative, oil and gas activities associated with production and maintenance of the existing active wells listed in Table 4-1A (see Appendix F) would continue, and the lessee, operators, and well service contractors would continue to utilize existing access roads, utility easements and pipelines.

### 3.2 Alternative B - The Proposed Action

The Proposed Action involves drilling of the wells identified in Table 1-1 (see Appendix F) and the construction of the well pad and the associated infrastructure, which may include: access roads; oil, gas, and produced water gathering pipelines; buried electric and fiber optic utility lines; a tank battery (if necessary); and temporary above-ground freshwater pipelines. Appendix A and Appendix B of this EA include maps of the proposed well location(s) and the Drilling Plan for the proposed wells.

The Applicant must obtain an APD from the BIA, prior to drilling the wells. The well surface hole locations, discussed below in Section 3.2.5, were chosen by the Applicant in consultation with

Tribal and BIA resource managers and are intended to maximize the production potential of the Osage Mineral Estate.

The Applicant discussed the proposed action with surface owners, pursuant to 25 C.F.R. § 226.18, and the surface owners raised no objections to the locations selected for the well(s), well pad(s), access road(s), utility lines, and tank battery. See Appendix C-4 for surface owner letters. As the surface owners consented to the proposed routing of the access road(s) and utility lines, the BIA did not need to take federal action to set the routes under 25 C.F.R. §§ 226.18(b) and 226.19(a).

The BIA Osage Agency manages surface lands held in trust by the United States for the Osage Nation and restricted allotments owned by individual Tribal members within Osage County, Oklahoma. The proposed action <does affect/does not affect> surface lands held in trust or restricted status, and tribal rights of way <are/are not> involved with the proposed action.

### 3.2.1 Specific Location Descriptions

The well and facility location(s) described below may include topsoil piles, soil berms, pump jacks, tanks and separators/treaters. A photographic log depicting the conditions of the proposed well pad areas, access roads, and flowline/utility corridors is included in Appendix E.

#### 3.2.1.1 <Insert Well Name>

The proposed well pad, utility corridor, and pipeline system would be located (insert legal description), Osage County, Oklahoma.

An area of approximately <acres> will be disturbed, if necessary, to facilitate the drilling and completion of the well.

[Lessees insert additional sections if more than 1 well is being included in this EA]

### 3.2.2 Well Pads and Infrastructure

Well pad and utility corridor locations, shown in Appendix A, were developed in consultation with tribal and BIA resource managers during a pre-clearance process that included surveys for cultural, archaeological, and natural (*i.e.*, biological and physical) resources.

If installed, the pump jack will be surrounded by a suitable fence if the project area is located within an active livestock pasture. The fence would keep livestock offsite as well as any unauthorized individuals from possible injuries sustained by wandering onsite.

At the well pad locations, access roads will be maintained with gravel to reduce erosion. The road will be kept to a minimum and will utilize an easement approximately <feet> wide.

Utility lines to supply power to the well pad equipment will be needed. Existing infrastructure will be used where possible, and new flowlines and utility lines will occupy an easement of approximately <feet> in width. Where feasible, the utility and pipeline corridors will be one to reduce the footprint of the project.

Pipelines to connect the well to infrastructure to move the product to market will be constructed. The installation will occur using a trencher, and where necessary, heavier equipment to penetrate

through rock. Actual soil disturbance is expected to be <inches>, except where rock is encountered, and then maximum width of soil disturbance will be approximately <inches>.

Interim reclamation activities for this undertaking would reclaim approximately <acres> from the initial well pad surface disturbance for each of the wells. All components (e.g., well pad, access road, storage areas, and supporting facilities), with the exception of buried pipelines, electrical lines, and fiber optic utility lines would be reclaimed upon final abandonment unless formally transferred, with federal approval, to either the BIA or the landowner. Applicant will incorporate the appropriate COAs and BMPs as described in Section 5.0, Mitigation and Monitoring.

### 3.2.3 Well Drilling

Drilling of the new wells is expected to occur between <beginning date> and <ending date>. The well pads will occupy a maximum of <acreage>; however, actual field conditions may result in a much lower area of impact.

Following preparation of the well pad, a drilling rig will be rigged up. The total time for the well for rigging up, drilling the well, and rigging down the well is approximately <days>.

Cuttings would be placed into a single onsite cuttings pit. The wells will be drilled using air rotary drilling rigs. The total depth of each well will vary at each well, and the total depths are provided in the detailed Drilling Plan in Appendix B.

### 3.2.4 Access Roads and Utility Corridors

“Company” will establish new access roads occupying a total of approximately <acreage>. The new utility corridors and pipeline ROW will occupy a total maximum of <acreage>, likely less depending on field conditions. Pipeline construction will adhere to the requirements of 49 C.F.R. § 192.707, Line Markers for Mains and Transmission Lines as applicable. Full text of the regulation is available online free of charge at [www.ecfr.gov](http://www.ecfr.gov).

On average the temporary above-ground freshwater pipelines would remain in place for approximately 10 days to facilitate the drilling and hydraulic fracturing (HF) of the well, if needed.

Access road construction will follow a road design based on the agreement with applicable surface owner, and appropriate for the planned use as well as environment. Stockpiled topsoil will be placed on the outside slopes of the ditches following road construction. Care will be taken during road construction to avoid disturbing or disrupting any buried utilities that exist along existing major roads. The access road will be surfaced with aggregate, and the applicable surface owner agrees with the use of aggregate. Also, the roadways would remain in use for the life of the wells. Details of road construction are addressed in the APD.

### 3.2.5 Casing and Cementing

Surface casing will be set at approximately <footage> with production casing being set to the total depth of the well and cemented up to the ground surface in order to protect any applicable underground source of drinking water (USDW) at approximately <footage>. See the Drilling Plan in Appendix B.

### 3.2.6 Completion and Evaluation

After casing and cementing operations, an acid job may be performed on the well to clean out the formation and facilitate fluid flow. This will consist of approximately <gallons> of hydrochloric acid (HCl) pumped in at <barrels> per minute. The well(s) <are/are not> expected to undergo HF. HF would only be utilizing if the formation is still not allowing enough fluid to enter the well bore after acidizing. Some wells may not require either acidizing or HF procedures and will flow naturally.

Once the acid job and/or HF procedures are complete, the well will be shut in, the production wells will be tied in via steel pipelines to the existing production pipeline system. See the Drilling Plan in Appendix B.

### 3.2.7 Commercial Production

If drilling, testing, and production results determine that there will be commercial production from the proposed well pads, black poly pipelines will be installed to transport crude oil, natural gas and produced water to existing mainline pipelines, where it will travel to an existing storage facility which may serve multiple existing wells.

The duration of production operations cannot be reliably predicted, but some oil wells have been pumping for more than 100 years. The operator estimates that each of the wells would initially yield approximately <barrels> of oil per day and <barrels> of water per day during the first year of production. After the first year, the operator estimates production would decrease to approximately <barrels> of oil per day and <barrels> per day of water. Approval will be obtained from the Osage Agency Superintendent prior to the initiation of any flaring operations in accordance with applicable regulations. Please see the Drilling Plan in Appendix B.

### 3.2.8 Reclamation

Refer to Chapter 4 in the Osage County Oil and Gas EIS as well as Table R-2 and Sections 3.7, 4.2, 5.1 and Appendix A in the Osage County Oil and Gas EIS ROD for an in-depth description of interim and final reclamation.

See the Drilling Plan in Appendix B for additional information.

## 4.0 THE AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The broad definition of NEPA leads to the consideration of the following elements of the human and natural environments: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice (EJ).

The Affected Environment and Environmental Consequences are as discussed in Osage County Oil and Gas EIS, Chapter 3, "Affected Environment" (existing biological, physical, and socioeconomic resources) and Chapter 4, "Environmental Consequences" (social, and economic consequences). Only aspects which are unique or relevant to this project are included in this EA.

No new impacts would occur due to the No Action Alternative to the following critical elements: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and

endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice (EJ).

Under the No Action Alternative, any impacts due to present levels of surface disturbance, oil and gas operations, access roads and traffic can be expected to continue. Existing oil and gas leases would remain in effect so long as production from existing wells continues in paying quantities. Table 4-1A (see Appendix F) shows the locations of currently existing wells, as well as proposed new oil and gas wells in the same quarter section. Therefore, the No Action Alternative is being eliminated from further analysis in this document.

The Affected Environment and Environmental Consequences are as discussed in Osage County Oil and Gas EIS, Chapter 3, “Affected Environment” (existing biological, physical, and socioeconomic resources) and Chapter 4, “Environmental Consequences” (social, and economic consequences). See Table 4-1B in Appendix F for a list of components of the affected environment incorporated from the EIS and listed in with corresponding section numbers. Sections incorporated entirely from the EIS will not be included in this EA therefore only site-specific considerations will be analyzed below.

#### 4.1 Land Resources

#### 4.2 Topography, Geology, Paleontology, and Soils

Table 4-1B (see Appendix F) details the elevation at the proposed well pad sites. A list of all mapped soil types that occur within the proposed project area is located in Table 4-4 (see Appendix F).

##### 4.2.1.1 Impacts to Topography, Geology, Paleontology, and Soils

The proposed well pad areas are primarily where soils have <percent> slopes. Care would be taken during construction to minimize soil erosion impacts.

1. The soil types found at the well pad locations have variable run-off depending on the slope, which ranges between <percent range> (NRCS 2012).
2. Reclamation of vegetative communities should be attainable due to the affinity of native grassland species to the soil types present (NRCS 2012).
3. The sites would be monitored during and after construction to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.

#### 4.3 Water Resources

The Proposed Action locations are in the <location> of Osage County, which is included in <Oklahoma Water Quality Basin Number> (see Appendix D-1).

Refer to Table R-2 in Section 3 of the Osage County Oil and Gas EIS ROD for an in-depth description of conditions of approval related to water resources in Osage County.

The appropriate SPCC plans are on file at the BIA and are included in Appendix C. Provisions established under this plan would minimize potential impacts to any surface waters associated with an accidental spill.

#### 4.3.1 Potential Impacts to Surface Water and Groundwater Resources Surface Waters

##### Surface water

None of the new well locations are located within <footage> of an existing water place or waterway. None are located immediately adjacent to any perennial streams or lakes. Specific waterbodies that may be affected are described in Section 4.5 Wetlands. No proposed wells are in the drainage area of any state designated scenic river or high-quality water.

The proposed development activities would be done in a manner to prevent any point source or nonpoint sources of contaminated discharges. Compliance with applicable SPCC requirements, mitigation measures and best management practices identified in Section 5.0 or specifically listed in any BIA-issued permits, would ensure protection of water quality and water resources. No withdrawal or consumptive use of surface water resources is proposed, so stream flow or water levels in ponds/lakes will not be affected.

Several Osage County streams are listed as impaired, and the source of impairment for some of these includes legacy oil and gas development. However, none of the proposed well locations are immediately adjacent to, nor would they drain directly into, any streams or lakes listed on the state's list of impaired waterbodies.

**Conclusion:** No significant impacts to surface waters are anticipated by the proposed wells and associated activities connected with the Proposed Action.

##### Groundwater

There are areas in Osage County which are designated as wellhead protection zones (groundwater is being used for drinking water). However, the proposed well locations do not appear to be close to any of these designated areas.

No direct or indirect impacts to groundwater resources are anticipated from drilling of the proposed wells, HF completions, or operation of the proposed wells due to the following.

- The employment of spill prevention planning during the construction phase of the project.
- The use of protective casings on the well shafts to protect shallow water-bearing rock formations during drilling and operation of the oil wells.

Surface casing will be set to a depth at least <footage> below the Underground Source of Drinking Water (USDW) depth as determined for the quarter section by EPA to protect groundwater in the area. Table 4.3 (see Appendix F) lists the depths of the USDW provided by EPA.

Several groundwater protective measures have been included in the drilling and production procedures, such as drilling with freshwater to a point below the base of certain formations, implementing proper hazardous materials management, and using appropriate casing and cementing.

The intent of the Proposed Action is to minimize the risks associated with saltwater and hydrocarbon pollution. Based on the location, design, and the drilling methods that would be used on the proposed well pads, no significant adverse impacts to or groundwater resources are anticipated from the Proposed Action.

#### 4.3.1.1 Action Designed to Reduce Impacts

Unlike well pads, active roadways are not typically reclaimed, thus sediment yield from roads can continue indefinitely at rates two to three times the background rate. The Proposed Action would create approximately <mileage> of new and improved roads in the surrounding area adding incrementally to existing and future impacts to soil resources, dust deposition, and erosion processes. New well field developments would be speculative until APDs are submitted to the BIA for approval. Additional wells have been or are likely to be drilled in the same general area as the Proposed Action, using many of the same main access roads and minimizing the disturbance as much as possible.

The Applicant is committed to using COAs and BMPs to mitigate the potential effects of erosion. BMPs would include the implementation of erosion and sedimentation control measures, such as installing culverts; constructing water bars alongside slopes; and planting cover vegetation if necessary, to stabilize soil following construction and before permanent seeding takes place. Additional information regarding COAs and BMPs is provided in Section 5.0, Mitigation and Monitoring.

Specific erosion control measures would be implemented when necessary at the proposed well pads. If needed, berms would be installed along the outer edges of the well pads, and well pad corners would be rounded.

#### 4.4 Vegetation, Wetlands, and Noxious Weeds

The USACE regulates the discharge of dredge and fill material into waters of the U.S., including wetlands, pursuant to Section 404 of the Clean Water Act. Additionally, Executive Order 11990 (protection of Wetlands) requires federal agencies to avoid, to the extent possible, adverse impacts to wetlands.

The National Wetland Inventory (NWI) maps maintained by the U.S. Fish and Wildlife Service (USFWS) were reviewed for proposed well sites. Copies of the NWI data for the well sites, access roads, and flowline/utility corridors are included in Appendix D-1. During the field assessment of the proposed action, no wetlands were noted within the vicinity of the well pad areas, main access roads, or flowline/utility corridors. Based on these factors, no jurisdictional wetlands would be impacted by the proposed well actions.

##### 4.4.1 Potential Impacts to Wetlands

While initial siting of the well pad and other infrastructure disturbances shows that there will be no potential impacts to wetlands, “Company” will implement COAs as described in Section 5.0 to avoid disturbances to any waterbodies near or in the proposed well pad development site. No impacts to jurisdictional wetlands are anticipated as a result of the proposed action.

#### 4.5 Prime Farmland

Consultation was conducted with the Natural Resources Conservation Service to identify prime farmland within the Proposed Action area. Table 4-5 (see Appendix F) is a summary of the information obtained from NRCS. Detailed prime farmland reports are included in Appendix C-1.

#### 4.5.1 Potential Impacts to Prime Farmland

Impacts as a result of the Proposed Action would be considered minimal, as “Company” will limit the area of impact and disturbance during the well pad installations. Losses of prime farmland will be temporary in nature, as the land will be reclaimed and placed back to natural conditions when the well production has ceased, and the well is closed in. No significant impacts to NRCS-designated Prime Farmland soils are anticipated as a result of the proposed action.

#### 4.6 Wildlife

##### 4.6.1 Potential Impacts to Wildlife

Approximately <acreage> of existing vegetation will be removed short and long term, respectively, by well-pad, pipeline, and access road construction.

##### 4.6.2 Threatened and Endangered Species and Migratory Birds

As part of the proposed action’s preliminary planning and development, information was obtained to determine the federally protected species that could potentially occur within the vicinity of the project. An official list of species potentially impacted by each well is located in Appendix C-2.

##### 4.6.3 Potential Impacts to Threatened and Endangered Species and Migratory Birds

A list of federally-listed species that may be affected by the proposed action was obtained from the USFWS’ Information, Planning, and Conservation System (IPaC) online database. Table 4.6 (see Appendix F) lists the species reported as well as their federal status and preferred habitat descriptions.

“Company” conducted both a desktop-based analysis of the habitat in the area of each well, as well as a field-based habitat assessment at each proposed well site. No suitable habitat was identified within any of the well pad sites for supporting the piping plover, red knot, or whooping crane. Therefore, the proposed action would have “**no effect**” on these listed species.

Habitat suitable for potentially supporting the American burying beetle (ABB) was identified within the proposed well pad areas. However, per the USFWS Reclassification of the American Burying Beetle to Threatened with a Section 4(d) Rule effective November 16<sup>th</sup>, 2020 (Docket No. FWS-R2-ES-2018-0029), incidental take of the ABB in the Southern Plains Analysis Region is not prohibited except on certain defined conservation lands. These defined areas are military installations, and none of the conservation lands are located in Osage County.

Per the 4(d)-rule issued by USFWS, any incidental take resulting from the proposed action would not be restricted, and no further action (presence/absence surveys, prescribed mowing, etc.) would be required for USFWS approval of the proposed action. In accordance with the 4(d) Biological Opinion approved on October 15, 2020, the BIA submitted a determination key to the USFWS asking for concurrence on a "may affect, not likely to adversely affect" determination for the ABB ([https://www.fws.gov/southwest/es/oklahoma/abb\\_add\\_info.htm](https://www.fws.gov/southwest/es/oklahoma/abb_add_info.htm)).

No habitat suitable for nesting of eagles was observed at any of the well pad sites. Any impacts to migratory birds would be in the form of minor harassment, as the well pad installation will be minimally invasive and short term in duration.



No significant impacts to federally listed species, migratory birds, or eagles are anticipated as a result of the Proposed Action. No further Section 7 consultation with USFWS is required for the proposed action with regard to these resources.

#### 4.7 Agriculture

##### 4.7.1 Potential Impacts to Agriculture

No cropland exists in or near the proposed well pad site; therefore, none would be affected. The well pad site is located within cattle pasture, and any impacts would be minor and temporary in nature. The creation of access roads would be beneficial to the ranch operator, as it would increase their vehicle access to the property.

#### 4.8 Cultural Resources

If cultural resources are discovered during construction or operation, the operator shall immediately stop work, secure the affected site, and notify the BIA and THPO. Unexpected or inadvertent discoveries of cultural resources or human remains trigger mandatory federal procedures that include work stoppage and BIA consultation with all appropriate parties. Following any such discovery, operations shall not resume without written authorization from the BIA. Project personnel are prohibited from collecting any artifacts or disturbing cultural resources in the area under any circumstance. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required. The presence of qualified cultural resource monitors during construction activities is encouraged.

##### 4.8.1 Potential Impacts to Cultural Resources

The proposed action areas have been investigated by qualified archeologists using normal care and standards. During the records review portion of the investigation, no records of cultural resources or historical register eligible places were identified.

The survey reports were submitted to the BIA Osage Agency Archeologist for review and approval. In accordance with 36 CFR Part 800.3 and 800.4 the survey report was provided to the Osage Nation Tribal Historic Preservation Office, the State of Oklahoma Historic Preservation Office and the Oklahoma Archeological Survey for further review. All National Historic Preservation Act (NHPA) correspondence and concurrence letters are provided in Appendix C-5 of the EA to demonstrate completion of the section 106 NHPA compliance process.

Significant archaeological resources are irreplaceable and often unique; any destruction or damage of such resources can be expected to diminish the archaeological record as a whole. However, no such damage or destruction of significant archaeological resources is anticipated as a result of the Proposed Action, as these resources would be avoided. Therefore, no cumulative impacts to the archaeological record would occur as a result of implementation of the Proposed Action.

#### 4.9 Lifestyles and Cultural Values

Oklahomans are proud of their diverse cultures, scenic landscapes, and hospitality. Oklahoma has a history of rich American Indian culture and currently, Oklahoma is home to more than 37 tribes. Additionally, Oklahoma has a long-standing tradition of rodeos and is home to horse and cattle

ranches with working cowboys. Over 100 traditional and Indian rodeos occur through the year in Oklahoma (Shop Oklahoma 2012).

The Osage Nation is headquartered in Pawhuska, Oklahoma and has 22,925 members nationwide as of February 1, 2021 as shown in Appendix C-7. The Cultural Center, located in Pawhuska, was established in 2004 to maintain the ancestral traditions, values, and way of life of the Osage Nation. To maintain the values of their ancestors and their unique identity, the Osage Nation preserves the lessons of their ancestors. The Cultural Center hosts classes on traditional Osage language; traditional craft-wear, hosts artwork exhibits, and is home to a library (Osage Nation 2012 and Shop Oklahoma 2012).

#### 4.10 Infrastructure

Osage County is generally rural with small farming communities and rural residences are scattered throughout; there is limited infrastructure development. There is very little urban development in the County with the exception of the southeast corner which borders the city limits of Tulsa. Communities within are served by multiple municipal services including police, fire, water, power and other utilities.

##### 4.10.1 Potential Impacts to Resource Use Patterns

Based on the limited and short-term nature of the project, no significant impacts to any resource use patterns are anticipated as a result of the proposed action.

## 5.0 MITIGATION AND MONITORING

Many protective measures and procedures are described in this document and will be incorporated, as appropriate, by the applicant.

Mitigation opportunities can be found in general and operator-committed COAs and BMPs and mitigation measures. BMPs are loosely defined as techniques used to lessen the visual and physical impacts of development. “Company” will implement, to the extent possible, BMPs in an effort to mitigate environmental concerns in the planning phase, thereby allowing for smoother analysis, and possibly faster project approval.

### 5.1 General Requirements

Applicant will comply with the requirements of 25 CFR 226, including but not limited to:

- §226.22 – Prohibition of Pollution
- §226.33 – Line Drilling – Prohibiting location of any well or tank battery within 200 feet of a public highway, established watering place, or building used as a dwelling, granary, or barn unless prior written permission is granted by the Superintendent.
- §226.19 – Use of Surface Lands – Lessee must conduct operations in a workman like manner, commit no waste and allow none to be committed upon the land, nor permit any unavoidable nuisance to be maintained on the premises under his/her control.

### 5.2 Osage County Oil and Gas EIS ROD Conditions of Approval

Refer to Table R-2 in the *Record of Decision for the Osage County Oil and Gas Environmental Impact Statement (ROD)* for applicable Conditions of Approval (COAs).

\*\* In addition to the COAs listed above, the BIA may impose additional site-specific COAs as deemed necessary. The lessee must comply with all site-specific COAs unless: (1) the lessee submits a written request for an exemption from a specific COA and obtains the Superintendent's approval thereof; or (2) the Superintendent approved a set of equivalent COAs that were developed by the lessee and incorporated in the EA.

### 5.3 Air Quality BMPs

Refer to Attachment B in the Osage County Oil and Gas EIS for an in-depth description of air quality best management practices in Osage County.

## 6.0 REASONABLY FORESEEABLE FUTURE IMPACTS

Refer to Chapter 4 in the Osage County Oil and Gas EIS for an in-depth description of reasonably foreseeable future impacts in Osage County.

## 7.0 CONSULTATION AND COORDINATION

The BIA is committed to ongoing efforts to solicit the opinions and concerns of all stakeholders. For the purpose of this EA, a stakeholder is considered any Tribe, agency, municipality, or individual person which the Proposed Action may affect either directly or indirectly in the form of public health, environmental, or socioeconomic issues. The BIA has informally engaged the Osage Minerals Council in discussions about the NEPA process as it relates to this EA. The BIA has received comments concerning NEPA and environmental concerns from lessees, operators, Osage headright holders, nonprofit environmental organizations, the Osage Producers Association, the Osage Cattlemen's Association, state agencies, landowners and other interested stakeholders at various meetings of the Osage Minerals Council and at joint EPA/BIA stakeholder meetings on updates to the Osage Producers Manual. Discussion of issues with the Osage Nation, Osage Minerals Council, and Oklahoma Department of Wildlife Conservation, U.S. Fish and Wildlife Service and others is ongoing, including meetings of cooperating agencies on the county-wide Environmental Impact Statement for Oil and Gas Operations in Osage County.

Pursuant to 25 CFR §226.18, "Company" has conducted meetings to discuss the proposed action with applicable surface owners, or their authorized representatives, to coordinate the activity related to drilling and completing of the proposed wells. This included confirming project location and ingress/egress route. A confirmation letter for each action has been submitted to the BIA – Osage Agency, copies of which are included in Appendix C-4.

A copy of this EA will be available to the public, and it will be submitted to the Osage Nation, Osage Minerals Council, all federal cooperating agencies and to those with interests in or near the proposed actions.

## 8.0 LIST OF PREPARERS

An interdisciplinary team of BIA resource professionals, including Environmental Specialists, a Petroleum Engineer, Petroleum Engineer Technicians, and an Archeologist contributed to the development of this document in accordance with guidance provided in Part 1502.6 of Council of Environmental Quality regulations. This document was drafted by "<Company/Preparer>" under the direction of the BIA. Information was compiled from various sources within "Company".

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APPENDIX A  
LOCATION MAPS

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APPENDIX B  
DRILLING PLAN

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APPENDIX C  
REFERENCE DOCUMENTS

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APPENDIX C-1

PRIME FARMLAND CLASSIFICATION FROM NRCS

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APPENDIX C-2

THREATENED AND ENDANGERED SPECIES LIST FROM USFWS IPaC SYSTEM

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APPENDIX C-3

EXEMPTION REQUEST AND APPROVAL LETTERS-25 CFR 226.33

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APPENDIX C-4  
SURFACE OWNER LETTERS

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APPENDIX C-5

NHPA DOCUMENTATION

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APPENDIX C-6

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

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APPENDIX D  
WATER RESOURCES

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APPENDIX D-1

WATER QUALITY AND GROUNDWATER

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APPENDIX D-2

NRCS HYDRIC MAPS

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APPENDIX E  
PHOTOGRAPHIC LOGS

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APPENDIX F – TABLES

Table 1-1. Proposed Well Locations

Well Name	Township	Range	Section

Table 4-1A. Existing wells and new wells.

LEGAL DESCRIPTION	EXISTING WELLS	PROPOSED NEW WELLS

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Table 4-1B. Description of Affected Environment and Potential Impacts Osage EIS References

COMPONENTS OF THE HUMAN ENVIRONMENT	DESCRIPTION OF AFFECTED ENVIRONMENT	POTENTIAL IMPACTS
Topography, Geology, Paleontology, and Soils Resources	Section 3.2	Section 4.2
Air Quality	Section 3.4	Section 4.4
Air Quality BMPs	Section 4.2 & Attachment B in the Osage County Oil and Gas EIS Sections 5.1, 5.3, & Table R-2 in Section 3 of the Osage County Oil and Gas EIS ROD	
Water Resources	Section 3.3	Section 4.3
Hydraulic Fracturing	Chapter 3 and Section 4.3	
Vegetation, Wetlands, and Noxious Weeds	Section 3.7	Section
Prime Farmland	Section 3.8	Section 4.8
Vegetation and Noxious Weeds	Section 3.7	Section 4.7
Wildlife	Section 3.5, 3.6	Section 4.5, 4.6
Threatened and Endangered Species	Section 3.6	Section 4.6
Migratory Birds	Section 3.5	Section 4.5
Agriculture	Section 3.8	Section 4.8
Cultural Resources	Section 3.9	Section 4.9
Public Health and Safety	Section 3.11	Section 4.11
Resource Use Patterns	Section 3.14, 3.17	Section 4.14, 4.17
Socioeconomic and Environmental Justice	Section 3.10	Section 4.10
Hunting and Fishing	Section 3.17	Section 4.17
Timber Harvesting	Section 3.14	Section 4.14
Recreation	Section 3.17	Section 4.17
Land Use Plans	Section 3.14	Section 4.14
Noise and Light	Section 3.13	Section 4.13
Visual	Section 3.12	Section 4.12

Table 4-1C. Well Pad Elevations

Well Name	Estimated Mean Elevation (feet above sea level)

Table 4-3. Soil Descriptions

Well Name	Soil Description	Percent Slope	Hydric Rating

Table 4.4. USDW Maximum Depth and Surface Casing Depth

LEGAL DESCRIPTION	USDW DEPTH	SURFACE CASING DEPTH	PROPOSED NEW WELLS

Table 4-5. Prime Farmland

Well Name	Soil Description	Percent Slope	Prime Farmland

Table 4-6. Federally-Listed Species, Status, and Preferred Habitat Descriptions

Species	Status	Preferred Habitat
Piping Plover ( <i>Charadrius melodus</i> )	Threatened	Migration through Oklahoma is likely to occur from March-May and July-September. Piping plovers usually migrate as individuals or small groups and may be seen along sandbars of major rivers, salt flats, and mudflats of reservoirs. Piping plovers forage on these shoreline habitats and eat small invertebrates.
Red Knot ( <i>Calidris canutus</i> )	Threatened	The Red Knot is a migratory shore bird that breeds on the dry tundra in northern Canada, and winters along the coast of southern North America and South America. The Red Knot migration path brings it through Oklahoma.
Whooping Crane ( <i>Grus americana</i> )	Endangered	The Whooping Crane inhabits a variety of wetland and other habitats, such as coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields.
American Burying Beetle ( <i>Nicrophorus americanus</i> )	Threatened	Considered to be a feeding habitat generalist, their reproductive habitat is believed to be more specialized. Habitat requirements are not fully understood, as the ABB has been found in various habitat types.



APPENDIX G - FIGURES

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Figure 1-2 Map of Well Locations

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