UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Farmington District
Farmington Field Office
6251 N College Blvd., Ste. A
Farmington, NM 87402

DECISION RECORD

for the

WPX Energy Production, LLC's
West Lybrook UT Nos. 764H, 765H, 766H

NEPA No. DOI-BLM-NM-FO10-2016-0016

(ATS-F010-15-152,287,301)

I. Decision

I have decided to select Alternative B for implementation as described in the West Lybrook UT No's 746H, 765H, 766H, Environmental Assessment (EA). Based on my review of the Environmental Assessment and project record, I have concluded that proposed action was analyzed in sufficient detail to allow me to make an informed decision. I have selected this alternative because the proposed project would allow WPX Energy Production, LLC access to their proposed drilling site in order to horizontally drill for oil and gas within their valid existing lease.

II. Conformance and Compliance

The proposed action is in conformance with the 2003 BLM-FFO Resource Management Plan (RMP). Pursuant to 40 CFR 1508.28 and 1502.21, this site-specific Environmental Assessment (EA) tiers into and incorporates by reference the information and analysis contained in the BLM-FFO Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) (BLM 2003a). The RMP was approved by the September 29, 2003 Record of Decision (ROD) (BLM 2003b), and updated in December 2003.

It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner that minimizes environmental damage and provides for the rehabilitation of affected lands. (BLM 2003b, 2-2 – 2-3)

III. Finding of No Significant Impact

I have reviewed the direct, indirect and cumulative effects of the proposed activities documented in the EA for the West Lybrook UT No's 746H, 765H, 766H. I have also reviewed the project record for this analysis. The effects of the proposed action and alternatives are disclosed in the Alternatives and Environmental Consequences sections of the EA. I have determined that construction of a well pad, access road and pipelines will allow WPX Energy Production, LLC reasonable access to the mineral lease in order to develop the existing lease as described in the EA will not significantly affect the quality of the human environment. Accordingly, I have determined that the preparation of an Environmental Impact Statement is not necessary.

IV. Other Alternatives Considered

Natural gas and oil wells can be drilled vertically or directionally/horizontally. Vertical drilling places a well pad directly above the bottom hole, while directional/horizontal drilling allows for flexibility in the placement of the well pad and associated surface facilities. Directional/horizontal drilling often allows for “twinning,” or drilling two or more wells from one shared well pad. Directional/horizontal drilling applications throughout the San Juan Basin have become relatively common. Generally, the use of this technology is applied when it is necessary to avoid or minimize impacts to surface resources.

Factors such as reservoir depth, angle of deviation, lateral displacement, completion technique, and risk are considered before deciding on the use of directional drilling applications. In addition, operating factors such as production efficiency; rod, pump, and tubing wear; and workover frequency is also a consideration. Generally, directional well completion and operating costs are 20 to 25 percent higher than vertical well drilling costs. The primary economic factors that determine the feasibility of directional applications include, but are not limited to, incremental drilling, completion, and operating costs; oil and gas reserves; rates of production; oil and gas prices; royalties and taxes; and return on investment.

No reasonable alternatives to the proposed action have been developed that would result in significantly fewer impacts or any clear advantages over the proposed action. The proposed access road and proposed pipeline corridors follow the most economic and direct route based on the location of existing WPX infrastructure, existing disturbance, surface resources, and terrain.

V. Rationale for the Decision

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this site-specific environmental assessment (EA) tiers to and incorporates by reference the information and analysis contained in the Farmington Proposed Resource Management Plan/Final Environmental Impact Statement [(PRMP/FEIS) BLM 2003a]. This EA is in conformance with the management goals set forth in the Resource Management Plan (RMP) for the Farmington Field Office (FFO) of the BLM, which was approved by the Record of Decision (ROD) signed September 29, 2003 (BLM 2003b). Specifically, this action is in conformance with the following: It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner that minimizes environmental damage and provides for the rehabilitation of affected lands (2003b, 2-2). The PRMP/FEIS, RMP, and ROD are available for review at the BLM Farmington Field Office, 6251 College Blvd., Farmington, NM, or electronically at:

The proposed action is in conformance with the 2003 BLM-FFO Resource Management Plan (RMP). Pursuant to 40 CFR 1508.28 and 1502.21, this site-specific Environmental Assessment (EA) tiers into and incorporates by reference the information and analysis contained in the BLM-FFO Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) (BLM 2003a). The RMP was approved by the September 29, 2003 Record of Decision (ROD) (BLM 2003b), and updated in December 2003.

Specifically, the proposed project supports the following BLM policy:

> It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner that minimizes environmental damage and provides for the rehabilitation of affected lands. (BLM 2003b, 2-2 – 2-3)

Regulations under 43 CFR 1610.5 requires the proposed action to be in conformance with the terms and the conditions of the RMP as approved by the ROD signed September 29, 2003 (BLM 2003b) and updated in December 2003.

I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). The proposed activities are not located in an ACEC containing relevant and important cultural values. Cultural resource surveys). Cultural resource surveys were completed (BLM Report Number 2015 IV 015). Cultural resources were not identified within the project areas.

No TCPs are known to exist in the APE. Historic properties are being avoided with the implementation of design features such as but not limited to reduction of construction areas, temporary barriers, and site monitoring. These design features are detailed in the Cultural Resource Record of Review, attached to the COA in the APD/ROW as the case may be. The proposed action is not known to physically threaten any TCP's, prevent access to sacred sites, prevent the possession of sacred objects, or interfere or otherwise hinder the performance of traditional ceremonies/rituals. The proposed action will have no direct or indirect impact on historic properties (no historic properties affected). As discussed in the Cultural Resources section 3.8.1 (page(s) 35 thru 38 of EA.

The BLM fulfills its responsibilities under the National Historic Preservation Act (NHPA) through a number of agreements. The National Programmatic Agreement (NPA; 2012) between the BLM, Advisory Council on Historic Preservation (ACHP), and the National Council of State Historic Preservation Officers (NCSHPO) allows the agency to fulfill its NHPA responsibilities according to the provisions of the NPA in lieu of 36 CFR 800.3 through 800.7 regulations. The NPA, which applies to all BLM activities below specified thresholds, provides among other things, regulatory relief in many instances from the requirement for case-by-case review by State Historic Preservation Officers (SHPOs) and the ACHP, in exchange for managers' maintenance of appropriate staff capability and observance of internal BLM standards as set out in the 8100 Manual series.

The New Mexico BLM has a two-party protocol with the New Mexico SHPO (2014) specifically encouraged by the NPA. This protocol details how the New Mexico BLM and SHPO will regulate their relationship and consult. Specifically, this document outlines among other things, how and when consultation will be conducted between the BLM, SHPO, Tribes, and the public. The protocol also outlines when case-by-case SHPO consultation is or is not required for specific undertakings and the procedures for evaluating the effects of common types of undertakings and resolving adverse effects to historic properties. These common types of undertakings regularly include the common actions undertaken in the BLM FFO.

The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The project area is not within any Sensitive species or Threaten and Endangered habitat. The project is located within the newly discovered Potential Brack's Cactus and Aztec Gilia habitat. The proposed project is in accordance with the Aztec Gilia/Brack's Cactus Interim Guidance.

The project is located within the Betonnie Tesoie Fossil SDA. Class 5 areas require an assessment of paleontological resources at the project level (BLM 2009). If a paleontological site is discovered during the construction phase of the proposed project, the site would be avoided by personnel, personal vehicles, and company equipment. Additional mitigation measures are discussed in Section 2.2.2 (Description of Proposed Project – Protection of Paleontological Resources). Therefore, no impacts to paleontological resources are anticipated as a result of the proposed project.

VI. Public Involvement

The BLM-FFO publishes a National Environmental Policy Act (NEPA) log for public inspection. This log contains a list of proposed and approved actions within the BLM-FFO. The log is located on the BLM's New Mexico website (http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html).

An initial on-site meeting was held for the proposed project on July 22, 2015. Attendees at the on-site meeting included WPX, BLM-FFO representatives, the dirt work contractor, the project surveyor, an archeological consultant, and an environmental consultant (EIS, LLC.).

A public invitation to the on-site meeting was posted online (http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_oil_and_gas/ffo_onsites.html); no private citizens or groups attended.

A BLM-FFO Interdisciplinary Team meeting was held on August 3, 2015, to discuss the proposed action. At the aforementioned meetings, potential issues of concern were identified by the BLM-FFO and EIS.

The EA was posted on the BLM-FFO website for a 30-day public comment period on December 8, 2015. One comment letters were received: Western Environmental Law Center, San Juan Citizens Alliance, Dine Citizens Against Ruining our Environment, WildEarth Guardians, and the Natural Resources Defense Council. Responses to substantive comments are contained in Appendix E of the EA.

VII. Administrative Review and Appeal

Under BLM regulations, this Decision Record (DR) is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this DR, with or without oral presentation, must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, 301 Dinosaur Trail, Santa Fe, NM 87508, no later than 20 business days after this DR is received or considered to have been received.

Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

This decision to authorize a right-of-way may be appealed to the Interior Board of Land Appeals (IBLA), Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4. Any appeal must be filed within 30 days of this decision. Any notice of appeal must be filed with Victoria Barr District Manager, Bureau of Land Management, Farmington Field Office, 6251 College Boulevard, Suite A, Farmington, NM 87402. The appellant shall serve a copy of the notice of appeal and any statement of reasons, written arguments, or briefs on each adverse party named in the decision, not later than 15 days after filing such document (see 43 CFR 4.413(a)). Failure to serve within the time required will subject the appeal to summary dismissal (see 43 CFR 4.413(b)). If a statement of reasons for the appeal is not included with the notice, it must be filed with the IBLA, Office of Hearings and Appeals, U. S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with Sam Burton, Acting Farmington Field Office Manager.

Notwithstanding the provisions of 43 CFR 4.21(a)(1), filing a notice of appeal under 43 CFR Part 4 does not automatically suspend the effect of the decision. If you wish to file a petition for a stay

of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal.

A petition for a stay is required to show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied;
(2) The likelihood of the appellant's success on the merits;
(3) The likelihood of immediate and irreparable harm if the stay is not granted; and
(4) Whether the public interest favors granting the stay.

In the event a request for stay or an appeal is filed, the person/party requesting the stay or filing the appeal must serve a copy of the appeal on the Office of the Field Solicitor: United States Dept. of the Interior, Office of the Solicitor, Southwest Regional Office, 505 Marquette Avenue NW, Suite 1800, Albuquerque, NM 87102

/s/Samuel R.M. Burton
Sam Burton
Acting Field Manager
Farmington Field Office

1/28/2016
Date

UNITED STATES DEPARTMENT OF THE INTERIOR
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Farmington District
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Finding of No Significant Impact
WPX Energy Production, LLC's
West Lybrook UT #764H, #765H, and #766H
NEPA No. DOI-BLM-NM-FO10-2016-0016

FINDING OF NO SIGNIFICANT IMPACT

I have determined that the proposed action, as described in Environmental Assessment (EA) NM-FO10-2016-0016 will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an Environmental Impact Statement is not required.

In making this determination, I considered the following factors:

Context

The Farmington Field Office (FFO) is located in northwestern New Mexico. The field office boundaries include approximately 7,800,000 acres; 1.4 million surface acres and an additional 1 million acres of mineral estate are managed by the BLM. The distribution of BLM-managed lands is fairly well consolidated in the north and becomes increasingly mingled with Tribal lands to the south. BLM-managed lands abut the Navajo Reservation to the west and south, Jicarilla Apache Nation Reservation to the east, and the Ute Mountain Reservation and Southern Ute Indian Reservation to the north. Aztec Ruins National Monument and Chaco Culture National Historical Park, managed by the National Park Service, lie within the field office boundaries. The BLM manages approximately 18% of lands within a 10 mile radius of Chaco Culture National Historical Park.

The FFO encompasses the New Mexico portion of the San Juan Basin. The San Juan Basin and surrounding areas have been occupied by varied cultures since the Paleo Indian period (circa 10,000 BC). The San Juan Basin and Four Comers area have one of the most extensive prehistoric and protohistoric occupations in the United States. The most commonly known archaeological resources are the Anasazi structures at Chaco Culture National Historical Park, Mesa Verde National Park, and other National Park Service sites. Scattered across BLM-managed lands are similar, but smaller structures, which were probably related to these larger sites. Twenty-three Chacoan outliers are known to exist within the FFO. Each contains at least one Chacoan structure and most have associated communities, prehistoric roads, and great kivas along with features such as herraduras and special use areas. The FFO contains an extensive system of finely engineered roads radiating out from Chaco Canyon and extending a considerable distance to outlying sites through the San Juan Basin and beyond. These roads are remarkably straight and carefully constructed. The most notable is the Great North Road, which starts at Chaco Canyon and run north to the Aztec Ruins.

Located within the boundary of the FFO is much of Dinétah, the ancestral homeland to the Navajo. Here the Navajo constructed forked-stick hogans, shades, sweat lodges, and other structures over a several hundred year span. During a short period between 1680 and the mid-1700s, pueblitos were constructed, often associated with other structures. Although not firmly dated, extensive Navajo pictograph and petroglyph sites were painted, etched, pecked, or ground onto the sandstone cliffs of the canyons of

Dinétah. Most are believed to be ceremonial art which is no longer traditionally executed in a permanent form.

Native American Traditional and Sacred Areas are known to exist across the FFO. Many are associated with narrative accounts of origin or other traditional stories. Most of the identified sacred areas are associated with the Navajo culture. These places are still important in Navajo ceremonies and daily activities.

Historic Hispanic or Spanish and Anglo sites within the San Juan Basin primarily date from the late 1800s to the present. Although there are some early Spanish land grants in the southern portion of the FFO, most historic sites located on public lands are either Hispanic or Anglo homesteads with associated structures from the late 1800s and early 1900s. Associated with many clusters of homesteads were a school house and often a church which was visited every few months by a priest.

Cultural resource inventories have been conducted throughout the FFO for project undertakings, management studies, and scientific inquiries. As of April 2014, approximately 760,000 acres of the 7,800,000 acres in the FFO boundaries have been inventoried. Over 46,000 sites have been identified ranging from small artifacts to the 800-room structures in Chaco Canyon. Many of these sites are listed on the National Register of Historic Places and Chaco Culture National Historical Park along with several of the Chacoan sites which have been placed on the World Heritage List. The FFO manages 79 Areas of Critical Environmental Concern (ACECs) for relevant and important cultural values, including five World Heritage Sites.

The San Juan Basin is an important area for mammalian and reptilian fossils. A variety of paleontological resources exist in the FFO including animal fossils, fossil leaves, palynomorphs, petrified wood, and trace fossils occurring in the Triassic, Jurassic, Cretaceous, and Tertiary rocks. Dinosaur and other fossils have made significant contribution to the scientific record have been found and excavated in the FFO. Paleontolgical resources are present in the Bisti De-Na-Zin Wilderness Area, Ah-Shi-Sle-Pa Wilderness Study Area, Fossil Forest Research Natural Area, and seven fossil areas identified in the 2003 Farmington Resource Management Plan.

The San Juan Basin is one of the largest natural gas fields in the nation and has been under development for more than 60 years. Oil was discovered by accident in the Seven Lakes area of McKinley County in 1911. Natural gas was discovered near Aztec, New Mexico, in 1920-1921 with oil of commercial quantity discovered near the Hogback in 1922 (Barnes 1951). Several small pipelines were built to carry the oil and gas from these discoveries to Aztec and Farmington. Development began in earnest in the late 1940s and early 1950s as the demand for natural gas increased. The FFO manages 2,765 active oil and gas leases in the San Juan Basin consisting of 2.1 million acres. Leasing began in the mid-1930s and accelerated in the late 1940s. By 1950, over 1 million acres were under lease.

In 1951, El Paso Natural Gas completed the first interstate pipeline out of the San Juan Basin to California. That same year, oil was discovered in the Mancos Shale in Dogie Canyon (Barnes 1951). Since that time, over 30,000 oil and gas wells have been drilled in the San Juan Basin with approximately 16,000 associated rights-of-way. Approximately 23,000 wells are currently producing. Since Stanolind Oil introduced hydraulic fracturing in 1949, nearly every well in the San Juan Basin has been fracture stimulated.

Intensity

1. The activities described in the proposed action do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). Per 40 CFR 1500.1(b), the EA concentrated on issues that are truly significant to the action in question, rather than amassing needless detail. Issues have a cause and effect relationship with the proposed action or alternatives; are within the scope of the analysis; have not been decided by law, regulation, or previous decision; and are amendable to scientific analysis rather than conjecture (BLM 2008, page 40). The following issues were identified related to the proposed action.

West Lybrook UT #764H, #765H, and #766H

- How would dust and equipment emissions associated with the proposed project impact air resources?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact upland vegetation?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact the likelihood and frequency of the introduction of noxious weeds?
- How would vegetation-clearing, proposed project activities, and final reclamation impact on wildlife, including migratory bird species?
- How would vegetation-clearing, proposed project activities, and final reclamation impact the following BLM Special Status Species (SSS): spotted bat *(Euderma maculatum),* Bendire's thrasher (*Toxostoma bendirei)*, golden eagle (*Aquila chrysaetos)*, prairie falcon (*Falco mexicanus),* gunnison's prairie dog *(Cynomys gunnisoni),* Aztec gilia *(Aliciella Formosa),* and the Brack's hardwall cactus (*Sclerocactus cloveriae ssp. Brackii)*?
- What are the impacts of the vegetation-clearing, proposed project activities, and final reclamation on livestock grazing?
- How would surface-disturbing activities associated with construction of the proposed project impact cultural resources?
- What are the impacts of the proposed project activities and operation of the proposed wells on public health and safety?
- What are the impacts of the proposed project activities and operation of the proposed wells on economic features of the community?
- What are the impacts of the proposed project activities and operation of the proposed wells on transportation?

The EA includes a description of the expected environmental consequences of the proposed activities for those issues in Chapter 3.

2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b)(2)). The following design features have been included in the proposed action to address any impacts to public health and safety.

The proposed project would affect transportation. During construction, the proposed project would result in increased traffic on area roads; some vehicles would be hauling heavy equipment. Therefore, there would be an increased potential for traffic accidents. Dust associated with construction activities or travel on dirt access roads may result in poor visibility in the area. The increased use of dirt access roads during muddy conditions may worsen the roads' conditions. Following construction and drilling, traffic levels would be similar to current levels; long-term effects on transportation would be positive due to the reduction of truck traffic from the piping of products from the location to a gathering system.

During construction, drilling, and maintenance activities, the operation of heavy equipment poses potential safety concerns. During the operation of the proposed well-connect pipeline, facility failure (such as pipeline ruptures) could represent a potential danger to the public. Impacts are likely to be low and long-term.

The proposed project area is fairly remote. The nearest town, Bloomfield (population 7,801 [U.S. Census Bureau 2015]), is approximately 42.9 road miles to the north-northwest, and U.S. Highway 550 is located approximately 5.1 road miles to the north. The closest residence to the proposed project area is approximately 1.2 miles west-southwest.

Air quality may affect health and safety. Air quality for Rio Arriba County and for the State of New Mexico is described earlier in Air Resources section 3.2.1. of the EA (pages 24 thru 30). Changes to air quality from the proposed action are expected to be relatively minor, as discussed in Section 3.1 of the EA. Workers in closest proximity to the drilling activity use engineering controls and protective gear to minimize risk of effects.

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The Air Resources Technical Report discusses the relevance of hazardous air pollutants (HAPs) to oil and gas development and the particular HAPs that are regulated in relation to these activities (USDI BLM 2014). The Environmental Protection Agency (USEPA) conducts a periodic National Air Toxics Assessment (NATA) that quantifies HAP emissions by county in the U.S. The purpose of the NATA is to identify areas where HAP emissions result in high health risks and further emissions reduction strategies are necessary. A review of the results of the 2005 NATA shows that cancer, neurological and respiratory risks in San Juan County are generally lower than statewide and national levels as well as those for Bernalillo County where urban sources are concentrated in the Albuquerque area (USEPA 2012).

The emissions calculator estimated that there could be very small direct and indirect increases in several criteria pollutants, HAPs, and greenhouse gases (GHGs) as a result of implementing the proposed alternative. The very small increase in emissions that could result would not be expected to result in exceeding the National Ambient Air Quality Standards (NAAQS) for any criteria pollutants in the analysis area.

3. The proposed activities would not significantly affect any unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas (40 CFR 1508.27(b)(3)). Unique characteristics are generally limited to those that have been identified through the land use planning process or other legislative, regulatory or planning processes (BLM 2008, page 71). The FFO does not contain any prime and unique farmlands, suitable or designated wild and scenic rivers, or designated caves.

Table 1 discloses the distance of the proposed activities to wetlands delineated by the Army Corps of Engineers. Table 2 discloses the distance of the proposed activities to National Park Service units and Congressionally designated areas. *The proposed action and alternatives are not located within an Area of Critical Environmental Concern.* Impacts to historic or cultural resources are described in the Cultural Resources section of the EA and discussed further under item 8.

Table 1. Distance of the Proposed Activities from Wetlands

Delineated Wetlands	Distance from Proposed Activities
Bancos	66 – 67 miles
Blanco	47 – 48 miles
Bloomfield	46 – 47 miles
Cutter Canyon	43 – 44 miles
Carrizo Oxbow	41 – 42 miles
Desert Hills	48 – 49 miles
Valdez	46 – 47 miles

Table 2. Distance of the Proposed Activities from Park Lands and Ecologically Critical Areas

Park Land or Ecologically Critical Area	Distance from Proposed Activities
Ah-Shi-Sle-Pah Wilderness Study Area	7 – 8 miles
Aztec Ruins National Monument	56 - 57 miles
Bisti De-Na-Zin Wilderness Area	17 – 18 miles
Chaco Culture National Historical Park	11 – 12 miles
Fossil Forest Research Natural Area	20 – 21 miles

4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)). Controversy in this context means disagreement about the nature of the effects, not expressions of opposition to the proposed action or preference among the alternatives (BLM 2008, page 71). Oil and gas development has occurred in the San Juan Basin for more than 60 years. While there may be controversy over the appropriateness of oil and gas development, there is not a high level of controversy or substantial scientific dispute over the impacts of that activity. The impacts of the proposed activities are described in Chapter 3 of the EA.

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5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)). As described under Context, oil and gas development has occurred in the San Juan Basin since the late 1940s and early 1950s. The field office has permitted over 30,000 wells and 16,000 rights-of-way. Hydraulic fracturing has occurred on nearly every well in the San Juan Basin since the 1950s. As such, the FFO has decades of experience and is knowledgeable about the impacts and risks associated with the proposed activities.

6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)). Approval of these activities in no way assures approval of any future activities.

7. The effects of the proposed activities would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). Direct, indirect, and cumulative impacts are described in Chapter 3 of the EA.

8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). The proposed activities are not located in an ACEC containing relevant and important cultural values. Cultural resource surveys). Cultural resource surveys were completed (BLM Report Number 2015 IV 015). Cultural resources were not identified within the project areas.

No TCPs are known to exist in the APE. Historic properties are being avoided with the implementation of design features such as but not limited to reduction of construction areas, temporary barriers, and site monitoring. These design features are detailed in the Cultural Resource Record of Review, attached to the COA in the APD/ROW as the case may be. The proposed action is not known to physically threaten any TCP's, prevent access to sacred sites, prevent the possession of sacred objects, or interfere or otherwise hinder the performance of traditional ceremonies/rituals. The proposed action will have no direct or indirect impact on historic properties (no historic properties affected). As discussed in the Cultural Resources section 3.8.1 (page(s) 35 thru 38 of EA.

The BLM fulfills its responsibilities under the National Historic Preservation Act (NHPA) through a number of agreements. The National Programmatic Agreement (NPA; 2012) between the BLM, Advisory Council on Historic Preservation (ACHP), and the National Council of State Historic Preservation Officers (NCSHPO) allows the agency to fulfill its NHPA responsibilities according to the provisions of the NPA in lieu of 36 CFR 800.3 through 800.7 regulations. The NPA, which applies to all BLM activities below specified thresholds, provides among other things, regulatory relief in many instances from the requirement for case-by-case review by State Historic Preservation Officers (SHPOs) and the ACHP, in exchange for managers' maintenance of appropriate staff capability and observance of internal BLM standards as set out in the 8100 Manual series.

The New Mexico BLM has a two-party protocol with the New Mexico SHPO (2014) specifically encouraged by the NPA. This protocol details how the New Mexico BLM and SHPO will regulate their relationship and consult. Specifically, this document outlines among other things, how and when consultation will be conducted between the BLM, SHPO, Tribes, and the public. The protocol also outlines when case-by-case SHPO consultation is or is not required for specific undertakings and the procedures for evaluating the effects of common types of undertakings and resolving adverse effects to historic properties. These common types of undertakings regularly include the common actions undertaken in the BLM FFO.

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)).

Due to the mobility of adult birds, they would be unlikely to be directly harmed by the proposed project. As discussed in Section 2.2.2 (Description of Proposed Project - Protection of Flora and Fauna, Including SSS and Livestock), if the vegetation-clearing phase of construction is scheduled to occur during migratory bird breeding season, a pre-construction migratory bird nest survey would be conducted within the associated

proposed project area. Therefore, it is unlikely that nests, eggs, or young birds within the proposed project area would be directly harmed. If project activities occur during migratory bird breeding season, birds nesting outside of but near the proposed project area could abandon existing nests as a result of visual and audial disturbances.

Indirect effects associated with disturbance to foraging habitat are described in Section 3.5.1 (Wildlife - Direct and Indirect Impacts – Migratory Birds).

The project area does not contain suitable habitat for mountain plover, yellow-billed cuckoo or bald eagle.

The proposed action area is within the BLM/FFO designated potential habitat area for Brack's hardwall cactus (*Sclerocactus cloveriae* var. *brackii*) and Aztec gilia *(Aliciella formosa*).

No Aztec gilia were identified during the surveys of the proposed project area. The survey was completed outside of the blooming period (late April to mid-June) for this species. Additionally, individuals of this species are typically very small and difficult to identify outside of the blooming period. As such, it is possible that individuals could have been overlooked during the survey.

No Brack's hardwall cactus were identified during the survey of the proposed project area. The survey was conducted outside of the blooming period (late April to mid-June) for this species. Additionally, individuals of this species are typically very small and difficult to identify outside of the blooming period. As such, it is possible that individuals could have been overlooked during the survey.

The proposed project would result in the disturbance of up to 10.42 acres of Aztec gilia/Brack's fishhook cactus habitat. Approximately 2.54 acres would remain as compacted, barren surface for the life of the proposed wells; for the long-term, this acreage would not provide potential habitat for these species. The remaining acreage would be reclaimed during interim reclamation, as described in Section 3.4 (Upland Vegetation); it is possible that Aztec gilia and Brack's fishhook cacti could become established within these reclaimed areas. During final reclamation, WPX would fully reclaim all portions of the proposed project area that were not fully reclaimed during interim reclamation (3.66 acres). In order to fully reclaim the 1.12 acres of the proposed project area that were only reseeded during interim reclamation, WPX would need to first clear the vegetation from within these areas in order to recontour them; during this process, it is possible that Aztec gilia and/or Brack's fishhook cacti that become established or reestablished within post-interim reclamation areas could be killed.

The Proposed Action would contribute 2.54 acres to that total and represents 0.45% of the cumulative impacts to BLM SSS species. The proposed project may contribute to the reduction of potential available habitat within the spatial analysis area. Cumulative impacts would be negligible. As discussed in section 3.6 Special Status Species page(s) 31 thru 33.

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Sections 1.4 and 1.5 of the EA describe the relationship of the proposed activities to relevant laws, policies, regulations, and plans.

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APPROVED:

/s/Samuel R.M. Burton	1/28/2016
Sam Burton Acting Field Manager Farmington Field Office	Date

United States Department of the Interior
Bureau of Land Management

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WPX Energy Production, LLC and WPX SJB Gathering, LLC's West Lybrook UT #764H, #765H, and #766H Oil and Natural Gas Wells Project

December 2016

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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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1. PURPOSE AND NEED FOR ACTION

1.1. Background

WPX Energy Production, LLC (WPX) and WPX SJB Gathering, LLC (WPX-SJB) propose the West Lybrook UT #764H, #765, and #766H oil and natural gas wellpad, associated access road, and well-connect pipeline project. WPX has submitted three Applications for Permit to Drill (APDs) to the Bureau of Land Management – Farmington Field Office (BLM-FFO) for the proposed West Lybrook UT #764H, #765, and #766H Oil and Natural Gas Wells. WPX-SJB has applied for two Right-of-Way (ROW) Grants from the BLM-FFO for the proposed West Lybrook UT #764H, #765, and #766H Well-connect and Water Pipelines. The proposed action is the approval of the APDs and ROW Grants by the BLM-FFO, located in Farmington, New Mexico.

Access to oil and gas reserves in a particular formation is regulated by spacing rules established by the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (NMOCD). On Federal lands, the BLM generally abides by NMOCD rules but has the authority to establish its own spacing and well density rules.

On May 14, 2015, WPX Energy went to hearing before the NMOCD in its application for approval of the West Lybrook Unit: creation of a new pool for horizontal development within the unit area, and for allowance of 330 foot setbacks from the exterior of the unit, San Juan County, New Mexico (Case No. 15300). The NMOCD subsequently issued its order approving the West Lybrook Unit as a project area and establishing setback requirements of 330 feet from the outer boundary (Order R-14002).

The proposed Project is within the West Lybrook Unit and is located on public lands managed by the BLM-FFO within Section 34 & 35 of Township 23 North, Range 09 West N.M.P.M. The proposed wells will develop Federal minerals from the Basin Mancos/Alamito Gallup Formation associated with valid existing leases NMNM 036949 and NMNM 057164. The Project would include the construction, use, and subsequent reclamation of one wellpad and construction zone, access road, and well-connect pipelines. One natural gas and oil well would be vertically drilled, possible produced and eventually plugged and abandoned and two (2) natural gas and oil wells would be horizontally drilled, possible produced and eventually plugged and abandoned from the aforementioned wellpad.

The proposed #764H, #765, and #766H wells, along with the wellpad and access road would each be authorized by an approved APD. The proposed well-connect pipelines, and waterlines are proposed by WPX-SJB and would each be authorized under a ROW Grant.

The Project would result in a total of 10.42 acres of disturbance with approximately 9.34 acres of new surface disturbance. The proposed access roads and pipelines run along existing disturbance where present and are placed within the same corridor. Of the total proposed surface disturbance, approximately 6.76 acres would be fully reclaimed and 1.12 acres would be reseeded (but not recontoured) during interim reclamation. The remainder (2.54 acres) would be stabilized and used as a working surface throughout the life of the proposed project, and would be fully reclaimed during final reclamation.

The Project area would be located within the BLM-FFO management area of San Juan County, NM. The proposed project would be located approximately 38 miles south-southeast of the town of Bloomfield, New Mexico; 11.5 miles southwest of Lybrook, New Mexico; and 4 miles south of U.S. Highway 550. (see Appendix A).

1.2. Purpose and Need for Action

The purpose of the following proposed action is to allow WPX reasonable access to BLM-managed lands to develop their Federal mineral lease (NMNM 036949 and NMNM 057164).

The need for the proposed action is established by the BLM's responsibility under the Mineral Leasing Act of 1920, as amended (MLA; 30 U.S. Code [USC] 181 et seq.), which authorizes the BLM to lease public lands for the development of mineral deposits (including oil, gas, and other hydrocarbons) and permit the development of those leases. Per 43 Code of Federal Regulations (CFR) 3160 (Onshore Oil and Gas Operations), the BLM is required to respond to a request for an APD. Additionally, it is the BLM's responsibility under the Federal Land Policy and Management Act of 1976 (FLPMA; 43 USC 1701 et seq.) to respond to a request for a ROW Grant over BLM surface. It is the policy of the BLM, as derived from several laws, including the MLA and Federal Land Policy and Management Act of 1976 (FLPMA, 43 USC 1701 et seq.), to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

1.3. Decision to be Made

The BLM-FFO will decide whether or not to issue the three APDs and two ROW Grants associated with the proposed project, and if so, under what terms and conditions. The BLM is mandated under the National Environmental Policy Act of 1969, as amended [42 U.S.C. §4321] which requires that environmental obligations are conducted in a manner that protects the mineral resources, other natural resources, and environmental quality. The authorized officer shall prepare an environmental record of reviews (e.g. Documentation of NEPA Adequacy [DNA]) or an environmental assessment as appropriate per [42 U.S.C. §3162.5-1(a)]. The BLM-FFO must determine based on this environmental record of reviews if there are any significant environmental impacts associated with the proposed actions, warranting further analysis in an Environmental Impact Statement (EIS).The BLM-FFO Field Manager is the authorized officer who will decide one of the following:

- To approve the APDs and ROW Grants with design features as submitted
- To approve the APDs and ROW Grants with additional mitigation added
- To analyze the effects of the proposed action in an EIS; or
- To deny the APDs and ROW Grants

1.4. Conformance with Applicable Land Use Plan(s)

The proposed action is in conformance with the 2003 BLM-FFO Resource Management Plan (RMP). Pursuant to 40 CFR 1508.28 and 1502.21, this site-specific EA tiers into and incorporates by reference the information and analysis contained in the BLM-FFO Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS; BLM 2003a). The RMP was approved by the September 29, 2003 Record of Decision (ROD; BLM 2003b), and updated in December 2003.

Specifically, the proposed action is in conformance with the following objectives:

> It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner that minimizes environmental damage and provides for the rehabilitation of affected lands. (BLM 2003b, 2-2 – 2-3)

Development of energy-related ROWs, such as off-lease wellpads, pipeline ties, and access roads, is one of the primary activities of the BLM-FFO lands program. Such ROWs receive environmental review on a case-by-case basis (BLM 2003b, 2-11).

This EA addresses site-specific resources and effects of the proposed action that were not specifically covered within the PRMP/FEIS as required by NEPA. The proposed project would not be in conflict with any local, county, or state plans.

1.5. Relationship to Statutes, Regulations or Other Plans

WPX would comply with applicable federal, state, and local laws and regulations. Necessary permits and approvals for the proposed project would be obtained prior to project implementation.

Many requirements regulating specific environmental elements are found in the appropriate elements sections of this EA (Chapter 3). Several permits, licenses, consultations, or other requirements are discussed below.

1.5.1 Clean Water Act

Activities affecting Waters of the U.S. are regulated under the Clean Water Act (CWA) (33 USC 1251-1376; Chapter 758; PL 845; 62 Stat. 1155); reauthorized 1991). Specifically, Section 404 authorizes discharges to waters of the U.S. and Section 401 provides water quality certification for such activities. The Section 401 certification would be granted by the New Mexico Environment Department (NMED).

Under Section 402 of the Act, as amended, the U.S. Environmental Protection Agency (EPA) regulates storm water discharges from industrial and construction activities under the National Pollution Discharge Elimination System program (NPDES). Permits are required if discharge results in a reportable quantity for which notification is required (pursuant to 40 CFR 117.21, 40 CFR 302.6, or 40 CFR 110.6) or if the discharge contributes to a violation of a water quality standard. However, oil and gas activities have been exempt from NPDES permitting regulations in New Mexico.

The Nationwide Permit (NWP) program under Section 404 of the Act provides for fills to waters subject to jurisdiction under Section 404 for certain discharges. It is administered by the EPA and U.S. Army Corps of Engineers (USACE). Under the CWA, the USACE has jurisdiction over waters of the U.S. Waters of the U.S. are considered jurisdictional because they have a “significant nexus” to traditional navigable waters. The BLM-FFO and USACE - Durango Regulatory Office have determined that jurisdictional waters (i.e., waters of the U.S.) within the BLM-FFO planning area may include U.S. Geological Survey (USGS) watercourses (i.e., “blue lines” on USGS 1:24,000 topographic maps) and potentially tributaries to these USGS watercourses. The propose project does not cross or result in disturbance to any watercourses mapped as blue lines on the USGS topographic map.

1.5.2 Clean Air Act

The Clean Air Act of 1972, as amended (CAA; 42 USC 7401 et seq.), establishes national ambient air quality standards (NAAQS) to control air pollution. In New Mexico, the NMED has adopted most of the CAA into the New Mexico Administrative Code (NMAC). The NMED issues construction and operating permits for air quality and enforces air quality regulations and permit conditions.

1.5.3 Endangered Species Act

The Endangered Species Act of 1973 (ESA) [16 U.S.C. 1531 et. seq.] requires all federal departments and agencies to conserve species listed as threatened or endangered, and species listed as candidates for federal listing with the United States Fish and Wildlife Service (USFWS), or designated habitat. Under Section 7 of the Endangered ESA, all federal agencies are required to consult with the USFWS or National Marine Fisheries Service on all actions authorized, funded, or carried out by a federal agency that may affect listed species or designated critical habitat.

Consultation with the USFWS was conducted as part of the PRMP/FEIS to address the cumulative effects of RMP implementation (Consultation No. 2-22-01-1-389, Appendix M of the PRMP/FEIS).

1.5.4 National Historic Preservation Act

BLM Farmington Field Office compliance with Section 106 of the National Historic Preservation Act is adhered to by following the State Protocol Agreement between New Mexico BLM and New Mexico State Historic Preservation Officer (BLM-SHPO 2014), which is authorized by the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (NPA 2012), and other applicable BLM handbooks.1.5.5 Paleontological Resources

Fossils found on BLM-managed lands are considered part of our national heritage and afforded protection. The BLM manages fossil resources for their scientific, educational, and recreational values. On public lands paleontological resources are managed under authorities and policy's that govern the management and preservation of the resource. Paleontological resources are managed under numerous authorities including the BLM Field Office 2003 Resource Management Plan (BLM 2003b, 4-117), Paleontological Resources Preservation Act of 2009 (Sections 6301-6312 of the Omnibus Public Lands Act of 2009, 16 USC 470aaa), Federal Land Policy and Management Act of 1976 (P.L. 94-579), National Environmental Policy Act of 1969 (P.O. 91-190), Potential Fossil Yield Classification System for Paleontological Resources on Public Lands (IM 2008-009), and the Assessment and Mitigation of Potential Impacts to Paleontological Resources (IM 2009-011). The authorities provide for civil and criminal penalties and also require that public lands be managed to preserve and protect the quality of scientific values of paleontological resources.

The BLM FFO recognized eight Paleontological Special Designated Areas (SDA) in the current Resource Management Plan (more than 135,000 acres) in order to preserve important paleontological resources for scientific study, protection, and other public benefits (BLM 2003b, 4-117). The BLM has determined that these areas require special management attention in order to protect, and prevent irreparable damage to important paleontological resources. The project is located within the Betonnie Tsosie Fossil SDA.

1.5.6 Wastes, Hazardous or Solid

The Resource Conservation and Recovery Act [(42 U.S.C.) § 6926, et. seq.] (RCRA) provides Federal authority to control hazardous wastes, including the generation, transportation, treatment, storage, and disposal of hazardous waste. It also sets forth a framework for the management of non-hazardous wastes and control of underground storage of petroleum or other hazardous materials and provides authority for state hazardous waste programs under §3006 of the Act. A 1980, amendment to RCRA conditionally exempted from regulation as hazardous wastes, "drilling fluids, production waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas. On July 6, 1988, EPA determined that oil and gas exploration, development and production (ED&P) wastes would not be regulated as hazardous wastes under RCRA. A simple rule of thumb was developed for determining if an ED&P waste is likely to be considered exempt or non-exempt from RCRA regulations: If (1) the waste came from down-hole, or (2) the waste was generated by contact with the oil and gas production stream during removal of produced water or other contaminants, the waste is most likely to be considered exempt by EPA.

The Comprehensive Environmental Response Compensation and Liability Act [(42 U.S.C.) §9601, et seq.] (CERCLA) provides Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment and provides for liability of persons responsible for releases of hazardous waste. Despite many oil and gas constituent wastes being exempt from hazardous waste regulations, certain RCRA exempt contaminants could be subject to regulations as hazardous substances under CERCLA. The New Mexico the Oil Conservation Division (OCD) administers hazardous waste regulations for oil and gas activities in New Mexico.

All wastes would be disposed of in a proper manner as required by federal and state law, and as described in the Conditions of Approval (COAs). No hazardous or solid waste materials are present within the analysis area. The notification of releases such as natural gas, natural gas liquids, and petroleum, outside a facility site is required under CERCLA and under BLM NTL-3A.

1.5.7 Public Health and Safety

All worker safety is governed by Occupational Safety and Health Administration (OSHA) safety laws and regulations. Worker safety incidents must also be reported to the BLM under the procedures of Notice to Lessee (NTL)-3A. Pipeline safety regulations are administered by OSHA as well as Department of Transportation (DOT) regulations. Pipeline safety regulations (49 CFR Parts 190 and 192) govern design, construction and operation of gas transmission lines. Any incidents involving DOT-regulated pipelines must be reported under these regulations (District 2003a).

Most substances and wastes generated at oil and gas facilities are exempt from regulation under the Resource Conservation and Recovery Act (1976). The Environmental Protection Agency (EPA) and DOT regulate materials associated with well construction and production activities that are classified as hazardous. When significant amounts of chemicals are stored on-site, governmental agencies will be notified as required under the Emergency Planning and Community Right to Know Act (1986). The notification of releases such as natural gas, natural gas liquids, and petroleum, outside the facility site is required under the Comprehensive Environmental Response Compensation and Liability Act, 1980 (CERCLA) and under BLM NTL-3A. The well locations must have an informational sign, as directed under 43 CFR 3160.

1.5.8 New Mexico State Regulations

The New Mexico Oil Conservation Division (NMOCD), which is in the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), regulates oil and gas operations in New Mexico. The NMOCD has the responsibility of gathering production data, permitting new wells, establishing pool rules and allowables, issuing discharge permits, enforcing rules and regulations, monitoring underground injection wells, ensuring that abandoned wells are properly plugged, and ensuring that the land is responsibly restored. Oil and gas regulations administered by NMOCD are contained in NMAC 19.15. These regulations include the following, with which WPX would comply:

- The EMNRD requires operators to follow “pit rule” guidelines (NMAC 19.15.17) to reduce groundwater contamination from industry-related activities.
- NMAC 19.15.15 establishes requirements for well acreage spacing, obtaining approval of unorthodox well locations, and pooling or communitizing small acreage oil lots.
- NMAC 19.15.16.19 requires the disclosure of hydraulic fracture constituents.

1.6. Scoping, Public Involvement, and Issues

1.6.1. Scoping and Public Involvement

The BLM-FFO publishes a NEPA log for public inspection. This log contains a list of proposed and approved actions within the BLM-FFO. The log is located on the BLM’s New Mexico website (http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html).

An allottee meeting was held on July 27, 2015 at 9:30 AM at the San Juan College in Farmington, New Mexico. The meeting discussed the formation of the West Lybrook Unit, WPX’s plans from development, and details about the unit hearing that would occur the following week. An initial on-site meeting was held for the proposed project on July 22, 2015. Attendees at the on-site meeting included WPX, BLM-FFO representatives, the dirt work contractor, the project surveyor, an archeological consultant, and an environmental consultant (EIS, LLC.). A public invitation to the on-site meeting was posted online

(http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_oil_and_gas/ffo_onsites.html); no private citizens or groups attended. A BLM-FFO Interdisciplinary Team meeting was held on August 3, 2015, to discuss the proposed action. At the aforementioned meetings, potential issues of concern were identified by the BLM-FFO and EIS, LLC.

Based on the size and scale, routine nature, and potential impacts associated with the proposed action, no additional external scoping was conducted. No public comments were received for the proposed action.

The EA was posted on the BLM-FFO website for a 30-day public comment period on December 8, 2015. One comment letters was received from the Western Environmental Law Center, San Juan Citizens Alliance, Dine Citizens Against Ruining our Environment, WildEarth Guardians, and the Natural Resources Defense Council. Responses to substantive comments are contained in Appendix D.

1.6.2. Issues to be Analyzed

The following issues were identified during internal scoping as potential issues of concern for the proposed action. These issues will be addressed in this EA.

- How would dust and equipment emissions associated with the proposed project impact air resources?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact upland vegetation?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact the likelihood and frequency of the introduction of noxious weeds?
- How would vegetation-clearing, proposed project activities, and final reclamation impact on wildlife, including migratory bird species?
- How would vegetation-clearing, proposed project activities, and final reclamation impact the following BLM Special Status Species (SSS): spotted bat *(Euderma maculatum),* Bendire's thrasher (*Toxostoma bendirei)*, golden eagle (*Aquila chrysaetos)*, prairie falcon (*Falco mexicanus),* gunnison's prairie dog *(Cynomys gunnisoni),* Aztec gilia *(Aliciella Formosa),* and the Brack's hardwall cactus (*Sclerocactus cloveriae ssp. Brackii)*?
- What are the impacts of the vegetation-clearing, proposed project activities, and final reclamation on livestock grazing?
- How would surface-disturbing activities associated with construction of the proposed project impact cultural resources?
- What are the impacts of the proposed project activities and operation of the proposed wells on public health and safety?
- What are the impacts of the proposed project activities and operation of the proposed wells on economic features of the community?
- What are the impacts of the proposed project activities and operation of the proposed wells on transportation?

1.6.3. Issues Considered but Not Analyzed

The following issues were identified during scoping as issues of concern that would not be impacted by the proposed action or that have been covered by prior environmental review. These issues will not be analyzed in this EA.

Areas of Critical Environmental Concern (ACECs)

The nearest Area of Critical Environmental Concern (ACEC) to the proposed action is the North Road ACEC/Chacoan Roads located 9.5 miles west.

Groundwater

Stimulation (i.e., hydraulic fracturing or “fracing”) is a process used to maximize the extraction of underground resources by allowing oil or natural gas to move more freely from the rock pores to production wells that bring the oil or gas to the surface. Fluids, commonly made up of water (99 percent) and chemical additives (1 percent), are pumped into a geologic formation at high pressure during hydraulic fracturing (USEPA 2004). Chemicals added to stimulation fluids may include friction reducers, surfactants, gelling agents, scale inhibitors, acids, corrosion inhibitors, antibacterial agents, and clay stabilizers. When the fracing pressure exceeds the rock strength, the fluids open or enlarge fractures that typically extend several hundred feet away from the well bore, and may occasionally extend up to 1,000 feet from the well bore. After the fractures are created, a propping agent (usually sand) is pumped into the fractures to keep them from closing when the pumping pressure is released. After fracturing is completed, a portion of the injected fracturing fluids returns to the wellbore and is recovered for future fracturing operations (USEPA 2004) or disposal. Stimulation techniques have been used in the United States since 1949 and in the San Juan Basin since the 1950s. Over the last 10 years, advances in multi-stage and multi-zone hydraulic fracturing have allowed development of gas fields that previously were uneconomic, including the San Juan Basin.

Hydraulic fracturing is a common process in the San Juan Basin and applied to nearly all wells drilled. The producing zone targeted by the proposed action is well below any underground sources of drinking water. The Mancos Shale formation is also overlain by a continuous confining layer. The geological confining layer is the Lewis Shale formation that is located above both the Mancos Shale and Mesaverde formations and provides an impermeable layer that isolates the Mancos Shale and Mesaverde formations from both identified sources of drinking water and surface water. On average, total depth of the proposed well bore would be about 5,000 feet below the ground surface. Fracturing in the Basin Mancos formation is not expected to occur above depths of 4,000 feet below the ground surface. Fracturing could possibly extend into the Mesaverde formation overlying the Basin Mancos; however, the formation has not been identified as an underground source of drinking water based on its depth and relative high levels of TDS. No impacts to surface water or freshwater-bearing groundwater aquifers are expected to occur from hydraulic fracturing of these proposed wells.

U.S. Fish and Wildlife Service (USFWS)-Listed Species

As noted previously, cumulative effects of the RMP to federally listed species and their associated habitats were addressed in the PRMP/FEIS. Based on a review of species currently listed by the USFWS as occurring in Rio Arriba County (USFWS 2015), as well as the location of the proposed project area and habitat within the proposed project area, the potential does not exist for USFWS-listed species to occur within the proposed project area. Water for drilling would be obtained from the permitted Blanco Trading Post (POD No. SJ 2105) water well; no unaccounted-for water depletions within USFWS-listed fish habitat would occur. Therefore, there is no need for additional Section 7 consultation.

Native American Religious Concerns

For the proposed action, identification efforts for Native American Religious Concerns were limited to a review of existing published and unpublished literature (e.g., Van Valkenburgh 1941, 1974; Brugge 1993; Kelly, et al. 2006), development of the site-specific Class III survey report prepared for the proposed action (La Plata Archaeological Consultants [LAC] Report No. 2015-2w [2015] and a review by the BLM’s cultural resources program regarding the presence of Traditional Cultural Properties (TCPs) identified through ongoing BLM tribal consultation efforts. There are currently no known remains that fall within the purview of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001) or the Archaeological Resources Protection Act (ARPA; 16 USC 470) within the proposed project area. The proposed action would not impact any known TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act of 1978 (AIRFA; 42 USC 1996) or Executive Order (EO) 13007.

Paleontological Resources

The San Juan Basin in northwestern New Mexico is rich in paleontological resources. The BLM used the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (Instruction Manual 2008-009) to identify areas with a high potential to produce significant fossil resources (BLM 2008d). Under this system, all lands within the BLM-FFO management area were designated as Class 5 (Very High Potential) for paleontological resources. The proposed Project is within the Betonnie Tsosie Fossil Area.

Class 5 areas require an assessment of paleontological resources at the project level (BLM 2009). If a paleontological site is discovered during the construction phase of the proposed project, the site would be avoided by personnel, personal vehicles, and company equipment.

2. PROPOSED ACTION AND ALTERNATIVE(S)

2.1. Alternative A: No Action

The “No-Action” alternative would deny the approval of the APDs and ROW Grants, causing the project not to take place. Aside from the “No-Action” alternative no other feasible alternatives were identified for the Project.

2.2. Alternative B: Proposed Action

The proposed action is the approval of Three APDs and two ROW Grants by the BLM-FFO for the West Lybrook UT #764H, #765, and #766H Project. The project includes the vertical and horizontal drilling, production and final abandonment of the West Lybrook UT #764H, #765, and #766H oil and natural gas wells from one proposed wellpad. These wells will develop Federal minerals administered by the BLM-FFO in the Basin Mancos/Alamito Gallup Formation from a surface location positioned on surfaces managed by the BLM-FFO, as well as the construction, usage, and reclamation of one wellpad with associated wellpad construction zone, access road, and well-connect pipeline corridor. Construction plats associated with the Project can be found in Appendix B.

2.2.1. Location of Proposed Project Area

Maps of the proposed project area are provided in Appendix A. The proposed project area is plotted on the Kimbeto and Lybrook NW, New Mexico, 7.5-minute USGS quadrangles and the 2011 New Mexico Resource Geographic Information System Program aerial photograph.

The Project is located on lands managed by the BLM-FFO in San Juan County, NM. The proposed project would be located approximately 38 miles south-southeast of the town of Bloomfield, New Mexico; 11.5 miles southwest of Lybrook, New Mexico; 4 miles south of U.S. Highway 550. The Project lies within the Escavada Wash watershed boundary.

The general region surrounding the proposed project area is characterized by badlands, mesas, and relatively flat lowland valleys. There are many broad, braided, shallow washes in the area. Specifically, the proposed project area sit at an elevation of approximately 6,696 feet above mean sea level (AMSL).

Legal land description of the proposed project and locations of the proposed bottom holes and surface holes (wellheads) are provided in Table 1 and **Error! Reference source not found.**, below.

Table 1. Legal Land Description for the Proposed Project

Township, Range	Section	Quarter-Quarter	Project Feature
Township 23 North, Range 9 West	34	Northeast ¼	W Lybrook UT #764H/#765/#766H Wellpad, Well Access, and Well-Connect Pipeline

Township 23 North, Range 9 West	35	North ½ of the Northwest ¼	W Lybrook UT #764H/#765/#766H Well Access and Well-Connect Pipeline

Table 2. Bottom Hole and Surface Hole Location

Project Feature	North American Datum 1983		Footages (NMPM)
	Latitude	Longitude	
764H			
Surface Hole (Wellhead)	36.189186° North	107.772377° West	552 feet from the north line, 1489 feet from the east line
Bottom Hole	36.177069° North	107.752160° West	330 feet from the south line, 800 feet from the east line
765			
Surface Hole (Wellhead)	36.189193° North	107.772444° West	550 feet from the north line, 1508 feet from the east line
Bottom Hole	36.189193° North	107.772444° West	550 feet from the north line, 1508 feet from the east line
766H			
Surface Hole (Wellhead)	36.189206° North	107.772579° West	545 feet from the north line, 1548 feet from the east line
Bottom Hole	36.177109° North	107.763254° West	330 feet from the south line, 1200 feet from the west line

2.2.2. Description of Proposed Project

For a detailed description of design features and construction practices associated with the proposed action, refer to the APDs and ROW Grant Applications on file at the BLM-FFO. Construction plats associated with the proposed project provide additional details (Appendix B).

Design Features and Best Management Practices

WPX and WPX-SJB would adhere to the Conditions of Approval (COAs) attached to the approved APDs and stipulations attached to the approved ROW Grants. The following general design features and best management practices (BMPs) would occur.

Control of Waste

- Drilling of the horizontal laterals will be accomplished with water-based mud. All cuttings will be placed in roll-off bins and hauled to a commercial disposal facility or land farm. No blow pit will be used.
- The closed-loop system storage tanks will be sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
- Drilling fluids will be stored on-site in aboveground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. All residual fluids will be hauled to a commercial disposal facility.
- Any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site.
- Portable toilets will be provided and maintained during construction, as needed.

- Garbage, trash, and other waste materials will be collected in a portable, self-contained, and fully enclosed trash container during drilling and completion operations. The accumulated trash will be removed, as needed, and will be disposed of at an authorized sanitary landfill. No trash will be buried or burned on location.

- Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash container will be cleaned up and removed from the well location.

- No chemicals subject to reporting under the Superfund Amendments and Reauthorization Act Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed annually in association with the drilling, testing, or completing of these wells.

- No extremely hazardous substances (as defined in 40 CFR 355) in threshold planning quantities will be used, produced, stored, transported, or disposed in association with the drilling, testing, or completing of these wells.

- Berms will be constructed around all storage facilities sufficient in size to contain the storage capacity of tanks. Berm walls will be compacted with appropriate equipment to assure containment.

Protection of Paleontological Resources

- If a paleontological site is discovered, the BLM would be notified and the site would be avoided by personnel, personal vehicles, and company equipment. Workers would be informed that it is illegal to collect, damage, or disturb some such resources, and that such activities are punishable by criminal and/or administrative penalties.

- Any paleontological resource discovery by the Holder, or any person working on his behalf on public or Federal land, shall be immediately reported to the Authorized Officer. The Holder shall suspend all operations in the immediate area of such discovery until given written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of the evaluation. The results of further investigation will dictate site specific stipulations for avoidance or salvage of any potentially significant paleontological resources. Any decision as to proper mitigation measures will be made by the Authorized Officer, after consultation with the Holder.

Protection of Cultural Resources

- All BLM/FFO cultural resources stipulations will be followed as indicated in the Cultural Resource Records of Review that is attached to the COAs in the APD and/or ROW Grant as the case may be. These stipulations may include, but are not limited to temporary or permanent fencing or other physical barriers, monitoring of earth-disturbing construction, reduction and/or specific construction avoidance zones, and employee education. All employees, contractors, and sub-contractors of the project will be informed by the project proponent that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment. All employees, contractors, and sub-contractors of the project will also be informed that it is illegal to collect, damage, or disturb cultural resources and that such activities are punishable by criminal and/or administrative penalties under the provisions of the Archaeological Resources Protection Act. In the event of a discovery during construction, the project proponent will immediately stop all construction activities in the immediate vicinity of the discovery and then immediately notify the archaeological monitor, if present, or the BLM. The BLM will then evaluate or cause the site to be evaluated. Should a discovery be evaluated as significant (e.g., National Register, Native American Graves Protection and Repatriation Act, Archaeological Resources Protection Act), it will be protected in place until mitigating measures can be developed and implemented according to guidelines set by the BLM.

Protection of Flora and Fauna, including SSS and Livestock

- Vegetation removed during construction, including trees that measure less than 3 inches in diameter (at ground level) and slash/brush, will be chipped or mulched and incorporated into the topsoil as additional organic matter. If trees are present, all trees 3 inches in diameter or greater (at ground level) will be cut to ground level and delimbed. Tree trunks (left whole) and cut limbs will be stacked. The subsurface portion of trees (tree stumps) will be hauled to an approved disposal facility.

- A migratory bird nest survey will be conducted if any vegetation-disturbing activities greater than 4 acres in size occur between May 15 and July 31. The survey must be conducted by a BLM-approved biologist using a survey protocol developed and provided by the BLM/FFO. If active nests are located within the proposed permitted area, project activities will not be permitted without written approval by a BLM/FFO biologist.

- Should any active raptor nests be observed within one-third mile of the proposed project area or should any SSS (listed by the USFWS or BLM) be observed within the proposed project area prior to or during project implementation, construction would cease and the BLM-FFO would be immediately contacted. The BLM-FFO would then ensure evaluation of the resource. Should a discovery be evaluated as significant (protected under the ESA, etc.), it would be protected in place until mitigation could be developed and implemented according to guidelines set by the BLM.

- Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in storage tanks, as necessary.

- Grazing permittees will be notified when construction is scheduled to begin. All hazards to livestock will be fenced or contained.

- All existing improvements (such as fences, gates, and bar ditches) will be repaired to previous or better than pre-construction conditions. Cut fences will be tied to H-braces prior to cutting and openings will be protected as necessary during construction to prevent the escape of livestock. A temporary closure will be installed the same day the fence is cut. Following reclamation, the fence will be reconstructed to BLM specifications.

- Backfilling operations will be performed within a reasonable amount of time to ensure that the trenches are not left open for more than 24 hours. If a trench is left open overnight, it will be temporarily fenced or a night watchman will be utilized. The excavated soils will be returned to the trenches, atop the pipe, and compacted to prevent subsidence. The trenches will be compacted after approximately 2 feet of fill is placed over the pipe and after the ground surface has been leveled.

- Escape ramps/crossovers will be constructed every 1,320 feet. The ends of the open trench will be sloped each night with a 4:1 slope.

- Established livestock and wildlife trails will be left in place as crossovers. In areas where active grazing is taking place, escape ramps/crossovers will be placed every 500 feet. Crossovers will be a minimum of 10 feet wide and not fenced.

- The end of the pipe will be plugged to prevent animals from crawling in.

- Before the trench is closed, it will be inspected for animals. Any trapped wildlife or livestock will be promptly removed and released at least 150 yards from the trench.

- Production equipment will be placed on location in such a manner to minimize long-term disturbance and maximize interim reclamation. As practical, access will be provided by a teardrop-shaped road through the production area so that the center may be revegetated.

Protection of Topsoil

- The upper 6 inches of topsoil (if available) will be stripped following vegetation and site clearing. Topsoil will not be mixed with the underlying subsoil horizons and will be stockpiled as a berm along the perimeter of the wellpad within the construction zone, separate from subsoil or other excavated material.

- Topsoil and sub-surface soils will be replaced in the proper order, prior to final seedbed preparation. Spreading shall not be done when the ground or topsoil is wet. Vehicle/equipment traffic will not be allowed to cross topsoil stockpiles. If topsoil is stored for a length of time such that nutrients are depleted from the topsoil, amendments will be added to the topsoil as advised by the WPX environmental scientist or appropriate agent/contractor.

Protection of the Public

- The hauling of equipment and materials on public roads would comply with Department of Transportation regulations. No toxic substances would be stored or used within the proposed project area. WPX would have inspectors present during construction. Any accidents involving persons or property would immediately be reported to the BLM-FFO. WPX would notify the public of potential hazards by posting signage, as necessary.

Prevention and Control of Weeds

- Prior to construction equipment entering the proposed project area, construction equipment would be inspected for noxious weeds and cleaned.

- It would be WPX's responsibility to monitor, control, and eradicate all invasive, non-native plant species within the proposed project area throughout the life of the project. WPX's weed-control contractor would contact the BLM-FFO regarding acceptable weed-control methods. WPX would be required to submit a current Pesticide Use Proposal for the location prior to any pesticide application. WPX's weed-control contractor must carry a current pesticide applicator' license and only use pesticides authorized for use on BLM lands. The use of pesticides would comply with federal and state laws, and used in accordance with their registered use and limitations. WPX's weed-control contractor would contact the BLM-FFO prior to using these chemicals.

Protection of Air Resources

- The BLM's regulatory jurisdiction over field production operations has resulted in the development of BMPs designed to reduce impacts to air quality by reducing all emissions from field production and operations. Typical measures could include flaring hydrocarbons and gases at high temperatures in order to reduce emissions of incomplete combustion, requiring that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored, ensuring that compressor engines 300 horsepower or less have nitrogen oxide (NO_x) emissions limited to 2 grams per horsepower hour, revegetating areas not required for production facilities to reduce the amount of dust, and watering dirt roads during periods of high use in order to reduce fugitive dust emissions. Magnesium chloride, organic-based compounds, or polymer compounds could also be applied to roads or other surfaces to reduce fugitive dust. Neither petroleum-based products nor produced water would be used.

- BMPs for dust abatement and erosion control will be utilized to reduce fugitive dust for the life of the project, as necessary. Water application, using a rear-spraying truck or other suitable means, will be the primary method of dust suppression along the road.

Additional Design Features and BMPs

- The access road will be designed and constructed as a Resource Road in accordance with the BLM Gold Book Standards (BLM and USFS 2007) and BLM 9113-1 (Roads Design Handbook) and BLM 9113-2 (Roads National Inventory and Condition Assessment Guidance and Instructions Handbook).

Construction will include ditching, draining, installing culverts, crowning and capping or sloping and dipping the roadbed, as necessary, to provide a well-constructed and safe road.

- Traffic pullout locations along the access road have been placed generally 400 – 500 feet apart along the length of the proposed access road, but may vary slightly depending on terrain and visibility. The pullout locations are identified in the attached project plats (Appendix B). Pullouts are 100 feet in length and 20 feet in width, adjacent to the proposed access road ROW.

- The construction zone along the northeast edge of the proposed wellpad has been reduced to a width of 35 feet to avoid the steep edge of north of the proposed wellpad.

- Production facilities would be painted Juniper Green to blend with the natural color of the landscape and would be located to reasonably minimize visual impact, to the extent practical. Equipment subject to safety considerations would not be painted.

- Vehicles would be restricted to proposed disturbance areas and existing areas of surface disturbance, such as existing roads and wellpads.

- No construction or routine maintenance activities would be performed during periods when the soil is too wet to adequately support construction equipment. If equipment would create ruts deeper than six inches, the soil would be deemed too wet for construction or maintenance.

- Worker safety incidents would be reported to the BLM-FFO as required under Notice to Lessees (NTL) -3A (USGS 1979). WPX would adhere to company safety policies, Occupational Safety and Health Administration regulations, and Department of Transportation regulations.

Proposed Project Phases

Construction

The BLM-FFO would be notified at least 48 hours prior to the start of construction. The construction phase for the proposed wellpad with associated access road and well-connect pipeline is expected to be three to four weeks. The proposed Chaco Trunk 2 Extension 7 Pipeline is expected to take approximately four to five weeks.

The proposed wellpad, access road, and pipeline corridor would be cleared of vegetation and topsoil stripped, stockpiled and stored as discussed in “Design Features and Best Management Practices – Protection of Topsoil,” above.

The proposed access road and wellpad would be leveled with a D-8 bulldozer to provide space and a level working surface for vehicles and equipment. Excavated materials from cuts would be used on fill as fill in order to establish a balanced surface area that utilizes native soil and materials available onsite. If sandstone is needed for surfacing, the sandstone would be retrieved from a permitted location.

The proposed access roads would be designed and maintained in accordance with *The Gold Book* (BLM and USFS 2007) standards and BLM Manual 9113, Sections 1 and 2 (BLM 2011d and BLM 2011e). All construction activities and road features including clearing, cut-and-fill slopes, and drainage ditches would all take place within the 30-foot-wide corridor. Sandstone will be used as surfacing material along the road if natural occurring binding material is not present in sufficient amounts within the existing soil and subsoil. If sandstone is needed for surfacing, the sandstone would be retrieved from a permitted location. A 14-foot-wide running surface with adequate crowning and drainage on both sides would be established. Culverts (24- to 48- inches in diameter) will be placed where identified during the onsite field inspection and specified on the construction plats (Appendix B).

The proposed pipeline ties would be constructed simultaneously within the pipeline corridor. The proposed well-connect pipeline corridor is parallel to the proposed access road for its entire length and both the access and pipeline corridor have been placed adjacent to an existing access road in the area

for approximately 3,062 feet of their proposed length. The corridor would be cleared of vegetation and the topsoil would be stored as a windrow along the pipeline trench within the permitted corridor, in the same manner as described for the proposed wellpad.

Trenching activities would be conducted using a trencher or backhoe. Within the 50-foot-wide pipeline/access road corridor, the two pipeline trenches would be off-set from one another by 5 feet. One trench would contain an 8-inch steel natural gas/liquids line, and a 6-inch poly gas/liquids line. The second trench will have two 6-inch steel gas/liquids lines. In addition, a 6-inch poly water pipeline will be placed in either Trench 1 or 2. Where required, the pipeline trench would be 4 to 5 feet in depth. The trench would be 16 inches in width if a trencher is used or 24 inches in width if a backhoe is used.

Following trenching operations, pipe installation will include stringing, bending for horizontal or vertical angles in the alignment, welding pipe segments together, inspection, coating of joints, and lowering-into the trench using a side-boom tractor. When stringing pipe, one joint of pipe would be set back every quarter mile. Fine soil will then be sifted from the excavated subsoil to provide rock-free pipeline padding and bedding. Backfilling of soils will begin after a section of pipe has been successfully placed in the ditch and final inspection has been completed. Once the pipelines are installed, the pipeline corridor disturbances would be reclaimed to pre-construction contours, topsoil replaced and the area re-seeded.

Prior to the pipelines being placed in service, the pipes would be pressure tested.

Within 90 days of installation, aboveground structures not subject to safety requirements would be painted Juniper Green to blend with the surrounding landscape and reduce visual resource impacts.

Pipeline markers would be installed along the proposed pipeline corridor within the line of sight, without voiding safety measures.

Sediment- and/or erosion control features would be installed, as necessary. Additional resource protection design features and mitigation associated with construction are listed in “Design Features and Best Management Practices,” above.

Production Facility Installation

Production facilities, including, but not limited to, tank batteries, water tanks, compressors, field gas separators, and electrical and automation equipment needed for the production of the wells will be installed on the level wellpad prior to drilling activities. All activities will take place within the wellpad and construction zones.

Drilling and Completion

Drilling operations would be conducted in compliance with Federal Oil and Gas Onshore Orders and all applicable NMOCD rules and regulations. A mobile drilling rig (“rig”) and other equipment would be transported to the location, where components would be assembled and the rig derrick erected. Other facilities and equipment that would be on the drilling site include: pipe racks, catwalk, hopper, rig personnel camper trailers, closed loop mud system, and personnel vehicles.

Drilling would begin, continuing through any fresh water bearing formations, then halt. A “shoe” (i.e. a seal) would be landed at the bottom of the hole, a surface pipe (“surface casing”) would be installed from the surface down to the shoe, and then cement would be circulated between the rough wall of the well bore and the casing pipe (“annulus”). The casing would be pressure-tested to ensure that a seal has been created. Drilling would resume through several zones before reaching the target formation, or production zone. An intermediate casing would be installed and cemented in place through these zones in order to seal off any troublesome zones that may present problems in drilling deeper portions of the well. Drilling would resume, entering and continuing horizontally through the target formation to the bottom hole location. A production casing or “production liner” (shortened string of casing that suspends from the intermediate casing) will then be landed and cemented in place. Casings prevent interzonal interaction between oil and gas bearing zones and usable water zones and maintain the integrity of the bore. Drilling

operations would continue 24-hours a day until complete. Drill cuttings would be hauled from the location and disposed of at an approved facility.

Following drilling, the drilling rig is typically moved off the location and a completion rig would take its place. Perforations would be shot through the production string across the zone of the target formation, to prepare for hydraulic fracturing. Fracturing materials, tanks, and pumps would also be moved to the location. The completion rig would connect to the perforated casing and begin fracturing the target formations through the perforations using pressurized water, fracturing fluids, and sand (to hold created subsurface fractures open).

After completion, the fluids (water and fracturing fluids) would be removed from the well bore and a well head would be installed. Completion fluids would be allowed to flow back to the on-site tanks. Water from fracturing would be confined to storage tanks and recycled and reused. Completion rigs are considered “daylight” rigs and operate during normal daylight hours only. Drilling and completion activities may take approximately 30 days per well depending on the well.

It is estimated that 23,000 barrels of useable water would be required to drill and complete each well. Of the 23,000 barrels, approximately 10,000 to 11,000 barrels would be recovered for reuse. Water for drilling and completion would be obtained from the San Juan Basin Water Haulers Association, who would retrieve and truck their water from a permitted water well (Blanco Trading Post well (POD No. SJ 2105)). WPX would ensure that water would be obtained legally and that all required permits would be obtained prior to obtaining water.

Interim Reclamation

If the proposed well prove to be productive, some portions of the proposed project area would be fully reclaimed (recontoured and reseeded), some portions would only be reseeded, and remaining portions (“working areas”) would remain disturbed throughout the life of the proposed wells.

The well pad will include two working areas that will not be reseeded and will total 0.98 acres. One area being an approximate 260-by-100-foot (0.60-acre) facility area located on the eastern end of the proposed well pad. The second area being a teardrop with a 16-foot-wide (0.38-acre) driving surface located within the center of the proposed well pad to access the wells and facilities. Approximately 1.12 acres will be reseeded but not recontoured during interim reclamation. These areas include the center of the teardrop excluding the overlapping working area (0.01 acre) and an approximately 180-by-340-foot area around the proposed wellheads for potential future activities, but would not be used on a daily basis. After accounting for the portion of this polygon that overlaps the teardrop and teardrop center, this region measures 1.12 acre. The remainder of the proposed well pad and construction zone (3.70 acres) would be fully reclaimed during interim reclamation.

A 14-foot-wide running surface and the bottoms of the bar ditches along either side of the access road (approximately 1.35 acre, total) would remain disturbed for the lifetime of the project. The remainder of the disturbed access road corridors (1.35 acre) would be reclaimed during interim reclamation.

Interim reclamation would likely be initiated on the wellpad within 120 days after the last well on that pad has been drilled. If drilling has not been initiated on the wellpad within 120 days of the wellpad being constructed, the operator will consult with the BLM to address a site-stabilization plan. The BLM-FFO would be notified at least 48 hours prior to the start of interim reclamation activities. Interim reclamation could occur simultaneously with production. Details of the interim reclamation process (including the seed mixture) are provided in the Surface Reclamation Plan (Appendix D).

During this phase, a bulldozer and a tractor with seeding capabilities would be used. Approximately four personnel would be required.

In areas that would be fully reclaimed, slopes would be re-contoured to pre-construction topographical contours, if possible. WPX would diminish the evidence of cuts, fills, and flat wellpad surfaces. In areas that are to be fully reclaimed or reseeded, stockpiled topsoil would be redistributed and the surface would

be ripped and seeded. Sediment- and erosion-control features (including water diversions, silt traps, and culverts) would be installed, as necessary. The BLM-FFO Sagebrush Community Seed Mixture would be used.

Under the BLM-FFO Bare Soil Reclamation Procedures (BLM 2013b), monitoring reclaimed surfaces is required to document successful reclamation. Monitoring and reporting are discussed in the Surface Reclamation Plan (Appendix D).

Production and Operation

The production phase of wells varies; the lifetime of the proposed wells is anticipated to be 30 to 50 years.

Production facilities would be located within a 260-by-100-foot facility area on the eastern end of the proposed wellpad. Production equipment that would remain on the proposed wellpad could include, but is not limited to, the following: wellhead, production unit, meter run, compressor, flare stack, water tanks, and oil tanks. The tear drop for the proposed wellpad would consist of a looped, 16-foot-wide driving surface; the tear drop would be used to access the proposed wellheads and other facilities.

Site security guidelines would be followed, as identified in 43 CFR 3162.7-5 and Onshore Oil and Gas Order No. 3.

During production, normal upkeep would be required to monitor production and resolve any problems. It is anticipated that two to three pick-up trucks would visit the wellpad daily during a normal work week.

Occasionally, workover or recompletion of the proposed wells would be necessary to ensure that efficient production is maintained. Workovers and recompletions would be scheduled as needed to improve and maintain production of the wells. Workover activities could include repairs to the wellbore equipment (e.g., casing, tubing, rods, and pump), wellheads, or production facilities. A 340-foot-by-180-foot workover area would surround the proposed wellheads. This workover area could be used for future activities within the proposed wellpad but would not be used for daily activities.

During the operation phase of the proposed pipeline ties, WPX personnel would rarely perform routine or emergency maintenance on the proposed pipeline ties and any associated facilities.

Final Reclamation and Abandonment

If the proposed wells prove to be unproductive, or when the proposed wells are no longer commercially viable, they would be plugged and abandoned. Downhole well abandonment would be carried out under current BLM-FFO and state regulations. The bore holes would be plugged with cement and the production facilities removed. An aboveground marker would be placed over the plugged holes. The markers would each contain individual well identification information.

The final reclamation phase is anticipated to take two to three weeks per wellpad. WPX would provide the BLM-FFO with technical and environmental aspects of the final plugging, abandonment, and reclamation procedures.

Final reclamation of the proposed wellpad and access road would take place, unless the BLM-FFO considers the retention of these facilities necessary for the management of multiple uses of natural resources. Details of the final reclamation process (including species included in the seed mixtures) are provided in the Surface Reclamation Plan (Appendix D). The goal of final reclamation would be to return disturbed areas associated with the proposed project to as close to pre-construction conditions as possible, by re-contouring and re-seeding to blend with the surrounding terrain. Portions of the proposed project area that were not fully reclaimed during interim reclamation would be cleared (if vegetated), re-contoured, covered with salvaged topsoil, and seeded. Sediment- and erosion-control measures would be implemented, as necessary. Water bars would be installed across the roads, and dead-end ditches and earthen barricades would be constructed at the entrance to reclaimed areas. Measures would be taken to control sedimentation and erosion, as necessary.

Final reclamation would occur within any portion of the proposed pipeline corridor (such as locations of aboveground structures) that would be disturbed to bare soil during the abandonment phase. If final abandonment activities would disturb less than or equal to 0.1 acre to bare soil, the area(s) would be expected to revegetate naturally (no reclamation or monitoring activities would be required). If final abandonment activities would disturb more than 0.1 acre to bare soil, final abandonment reclamation activities would be the same as described for interim reclamation (discussed in the Surface Reclamation Plan [Appendix D]).

Under the BLM-FFO Bare Soil Reclamation Procedures (BLM 2013b), monitoring reclaimed surfaces is required to document successful reclamation. Monitoring and reporting are discussed in the Surface Reclamation Plan (Appendix D).

2.2.3.

Surface Disturbance

The Project would result in a total of 10.42 acres of disturbance with approximately 9.34 acres of new surface disturbance. The proposed access roads and pipelines run along existing disturbance where present and are placed within the same corridor. Of the total proposed surface disturbance, approximately 6.76 acres would be fully reclaimed and 1.12 acres would be reseeded (but not recontoured) during interim reclamation. The remainder (2.54 acres) would be stabilized and used as a working surface throughout the life of the proposed project, and would be fully reclaimed during final reclamation.

West Lybrook 764H, 765, & 766H

Wellpad

The proposed well pad dimensions would be 520 feet by 315 feet (3.76 acres) with an additional 50-foot construction buffer zone surrounding all four sides with an exception to a restricted construction zone on the northeast side (reduction of approximately 15 feet by 310 feet) due to proximity to eroded slope side of mesa (2.04 acres). The resulting area would encompass a 5.80-acre working area. The well pad would require a maximum fill of approximately 3 feet on the west end, and a cut of 5 feet on the northeast corner of the well pad. This entire area will be utilized during construction, setting of production equipment, and drilling and completion phases. Two horizontal wells and one vertical well are planned to be drilled from this well pad with the potential for an additional three wells in the future. Approximately 1.08 acre of this proposed activity will be on previously disturbed area. Once all drilling and completions phases are complete for the wells, the well pad will be interim reclaimed.

Access Road

The proposed access road would be 3910.5 feet long within a 30-foot ROW (2.69 acres) from the start at County Road #7890 to the edge of the well pad. Approximately 52.5 feet will overlap the proposed construction zone (0.036 acre). Five pullouts have been identified on the construction plats with dimensions of 20 feet in width from the edge of the access ROW and 100 feet in length. A 14-foot-wide running surface and the bottoms of the bar ditches along either side of the road (approximately 1.35 acres, total) would remain disturbed for the lifetime of the project. The remainder of the disturbed access road corridor (1.35 acre) would be reclaimed during interim reclamation. As identified by the plats, the access road will be new disturbance.

Well-connect pipeline corridor

The proposed pipeline corridor would be 4055.4 feet within a 40-foot wide ROW paralleling and adjacent to the proposed access road, resulting in a total 50-foot wide pipeline/access road ROW. Approximately 230.7 feet would overlap the proposed #764H, #765 & #766H well pad from the edge of the well pad to the proposed well heads. Approximately 3824.7 feet of pipeline will extend from the edge of the well pad to the tie-in point on the proposed Chaco Trunk #2 Extension 9 Central Delivery Point (CDP) 7-1 (NMNM134008). The pipeline corridor alone will result in a maximum of 20 additional feet of disturbance width beyond the access road ROW. There would be approximately 1.08 acres of surface disturbance on

areas of previously disturbed ground and 0.676 acre of new disturbance. All disturbance would be fully reclaimed during interim reclamation.

Table 2: Surface Disturbance Calculations Associated with Proposed Project

Feature	Existing/Previously Permitted Surface Disturbance	New Surface Disturbance
Proposed West Lybrook UT #764H, #765, & #766H Oil and Natural Gas Wells project		
Well Pad & Construction Zone #764H/#765/#766H	-	620' long x 415' wide (5.743 acres)[1,2,3]
Subtotal	**-**	**5.743 acres**
Access Roads		
Access Road #764H/#765/#766H	-	3910.5' long x 30' wide ROW (2.693 acres)
Subtotal	**-**	**2.693 acres**
Well Connects		
Pipeline #764H/#765/#766H crosses over existing Western pipeline and parallels it running northwest	570.6' long x 20' wide ROW (0.262 acres)	-
Pipeline #764H/#765/#766H runs parallel to existing two-track for	2375.8' long x 15' wide ROW (0.818 acres)	2375.8' long x 5' wide ROW (0.273 acres)
Pipeline #764H/#765/#766H	-	878.3' long x 20' wide ROW (0.403 acres)
Subtotal	**1.08 acres**	**0.676 acres**
Pullouts		
Five pullouts along the #764H/#765/#766H Access road	-	(100' long x 20' wide) x 5 (0.23 acres)
Subtotal	**-**	**0.23 acre**
Total Project Surface Disturbance	**1.08 acres**	**9.342 acres**

[1] 0.036 acres of disturbance overlaps and has been accounted for in the Access Road Corridor.
[2] 0.024 acres of disturbance overlaps and has been accounted for in the pipeline corridor.
[3] 0.107 acres of Edge of Disturbance has been removed due to proximity to slope edge of mesa.

2.3. Alternatives Considered but Eliminated from Detailed Study

Natural gas and oil wells can be drilled vertically, directionally, or horizontally. Vertical drilling places a wellpad directly above the bottom hole, while directional and horizontal drilling allows for flexibility in the placement of the wellpad and associated surface facilities. Directional or horizontal drilling often allows for "twinning," or drilling two or more wells from one shared wellpad. Directional and horizontal drilling applications throughout the San Juan Basin have become relatively common. Generally, the use of this technology is applied when it is necessary to avoid or minimize impacts to surface resources.

Factors such as reservoir depth, angle of deviation, lateral displacement, completion technique, and risk are considered before deciding on the use of directional drilling applications. In addition, operating factors such as production efficiency; rod, pump, and tubing wear; and workover frequency is also a consideration. Generally, directional well completion and operating costs are 20 to 25 percent higher than vertical well drilling costs. The primary economic factors that determine the feasibility of directional applications include, but are not limited to, incremental drilling, completion, and operating costs; oil and gas reserves; rates of production; oil and gas prices; royalties and taxes; and return on investment.

No reasonable alternatives to the proposed action have been developed that would result in significantly fewer impacts or any clear advantages over the proposed action. The proposed access road and proposed pipeline corridors follow the most economic and direct route based on the location of existing WPX infrastructure, existing disturbance, surface resources, and terrain.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Methodology

3.1.1. Direct and Indirect Impacts

This section describes the environment that would be affected by implementation of the alternatives described in Chapter 2. Aspects of the affected environment described in this chapter focus on the relevant major resources or issues. Certain critical environmental components require analysis under BLM policy. These items are included above in Section 1.6.2.

Under the No Action alternative, current land and resource issues within the proposed project area would continue; there would be no new impacts from oil and gas development. The No Action alternative will serve as the baseline for comparing the environmental impacts of the analyzed alternatives, and will not be further evaluated in this EA (BLM 2008b).

For the purposes of this analysis, the proposed project area is considered the area where surface disturbance would occur, that is the proposed wellpad, wellpad construction zone, access road, well-connect pipeline corridor, and road pull outs. Impacts to the action area are based on predicted trends and typical current land uses. Impacts are defined as either being direct or indirect. The existing environments within the action area are described in detail for each resource in the following sections. Potential environmental effects are identified; evaluated; and classified as (1) Positive, (2) Low, (3) Moderate, or (4) Significant in terms of magnitude and (1) short-term, moderate-term, or (3) long-term with respect to the temporal span. Effects were analyzed assuming Design Features and Best Management Practices listed in Section 2.2.2 are implemented to mitigate impacts. The analysis area will be a defined area with either a natural or human delineated boundary. Often, the analysis area is the watershed in which the action occurs. For some issues, the analysis area may be the grazing allotment or BLM-FFO management area.

3.1.2. Cumulative Impacts

A Reasonably Foreseeable Development scenario (RFD) was prepared for the FFO in October 2014 (Engler, et al., 2014). The RFD identified high, moderate, and low potential regions for oil development of the Mancos-Gallup Formation. Within the high potential region, full development would include 5 wells per section, resulting in 1,600 completions. Within the moderate potential region, full development would include one well per section, resulting in 330 completions. Within the low potential region, full development would include one well per township, resulting in 30 well completions. Additionally, the RFD predicted 2,000 gas wells could be development in the northeastern corner of the FFO.

The following methods and assumptions were used to predict the potential impact of the development predicted in the RFD.

Past Oil and Gas Development

Past oil and gas wells were identified using Ongard. Following interim reclamation, the average wellpad size for past development is 0.75 acres per wellpad.

Present and Future Oil Development

Based on previous development, it was assumed that development of the high potential region would involve the twinning of wellpads. This is the placement of two or more wells on one wellpad. The assumption for the analysis is that the development of a section would include two twinned wellpads and one single wellpad, resulting in three wellpads for five wells. In the moderate and low potential regions, it was assumed that development would involve single wellpads. The proposed action is located outside of these delineated potential regions and has been assumed to be within the low potential region based on it being outside of the delineated area.

The average wellpad size for a twinned wellpad was assumed to be 500 feet by 530 feet, or 6.08 acres. An additional 0.6 acres was added to account for any associated road or pipeline development, resulting 6.68 acres of short-term disturbance. Following completion of the well, interim reclamation of the wellpad and reclamation of any pipelines would occur, resulting in 1.5 acres of long-term disturbance.

The average wellpad size for a single wellpad was assumed to be 500 feet by 500 feet, or 5.74 acres. Again, an additional 0.6 acres was added to account for associated road or pipeline development, resulting in 6.34 acres of short-term disturbance. Following completion of the well, interim reclamation of the wellpad and reclamation of any pipelines would occur, resulting in 1.5 acres of long-term disturbance.

The Random Point Tool in ArcMap was used to randomly assign points representing wellpads and associated disturbance based on the RFD assumptions: five wells per section in the high potential region, one well per section in the moderate potential region, and one well per township in the low potential region. This allowed both long-term and short-term disturbance from oil development of the Mancos-Gallup Formation to be calculated for the analysis areas used in this EA.

Present and Future Gas Development

The RFD predicted 2,000 wells could be developed in the gas prone area. The average wellpad size was assumed to be 555 feet by 410 feet, or 5.22 acres. An additional 0.6 acres of disturbance was added to account for associated roads and pipelines, resulting in total disturbance of 5.82 acres. Following completion of the well, interim reclamation of the wellpad and reclamation of any pipelines would occur, resulting in 1.5 acres of long-term disturbance.

The Random Point Tool in ArcMap was used to randomly assign points representing one wellpad and associated disturbance. This allowed both long-term and short-term disturbance from gas development in the northeastern corner of the FFO to be calculated for the analysis areas used in this EA.

3.2. Air Resources

3.2.1. Affected Environment

The proposed wells are located in San Juan County, New Mexico. Additional general information on air quality in the area is contained in Chapter 3 of the Farmington PRMP/FEIS. In addition, new information about greenhouse gases (GHGs) and their effects on national and global climate conditions has emerged since this document was prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO_2) methane (CH_4); nitrous oxide (N_2O); water vapor; and several trace gases on global climate. Through complex interactions on a global scale, GHG emissions may cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, and may contribute to overall climatic changes, typically referred to as global warming.

Much of the information referenced in this section is incorporated from the Air Resources Technical Report for BLM Oil and Gas Development in New Mexico, Kansas, Oklahoma, and Texas (herein referred to as Air Resources Technical Report; (BLM, 2014a)). This document summarizes the technical information related to air resources and climate change associated with oil and gas development and the methodology and assumptions used for analysis.

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including six nationally regulated ambient air pollutants (criteria pollutants). These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2) and lead (Pb). EPA has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The NAAQS are protective of human health and the environment. EPA has approved New Mexico's State Implementation Plan and the state enforces state and federal air quality regulations on all public and private lands within the state, except for tribal lands and within Bernalillo County. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. EPA has proposed or completed actions recently to implement Clean Air Act requirements for greenhouse gas emissions. Climate has the potential to influence renewable and non-renewable resource management.

Air Quality

Criteria Air Pollutants

The Air Resources Technical Report describes the types of data used for description of the existing conditions of criteria pollutants, how the criteria pollutants are related to the activities involved in oil and gas development, and provides a table of current National and state standards. EPA's Green Book web page (U.S. Environmental Protection Agency, 2013) reports that all counties in the Farmington Field Office area are in attainment of all National Ambient Air Quality Standards (NAAQS) as defined by the Clean Air Act. The area is also in attainment of all state air quality standards (NMAAQS*).* The current status of criteria pollutant levels in the Farmington Field Office are described below.

"Design Values" are the concentrations of air pollution at a specific monitoring site that can be compared to the NAAQS. The 2012 design values for criteria pollutants are listed below in **Error! Reference source not found.**4. There is no monitoring for CO and lead in San Juan County, but because the county is relatively rural, it is likely that these pollutants are not elevated. PM10 design concentrations are not available for San Juan County.

Table 3. 2012 Criteria Pollutant Monitored Values in San Juan County (U.S. Environmental Protection Agency, 2014)

Pollutant	2012 Design Concentration	Averaging Time	NAAQS	NMAAQS
O_3	0.071 ppm	8-hour	0.075 ppm[1]	
NO_2	13 ppb	Annual	53 ppb[2]	50 ppb
NO_2	38 ppb	1-hour	100 ppb[3]	
$PM_{2.5}$	4.7 µg/m^3	Annual	12 µg/m^3[3,4]	60 µg/m^3[3,6]
$PM_{2.5}$	14 µg/m^3	24 hour	35 µg/m^3[3,3]	150 µg/m^3[3,6]
SO_2	19 ppb	1-hour	75ppb[5]	

Source: U.S. Environmental Protection Agency, 2014
[1] Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
[2] Not to be exceeded during the year
[3] 98th percentile, averaged over 3 years
[4] Annual mean, averaged over 3 years
[5] 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
[6] The NMAAQS is for Total Suspended Particulate (TSP)

In 2005, the EPA estimates that there was less than 0.01 ton per square mile of lead emitted in FFO counties, which is less than 2 tons total (U.S. Environmental Protection Agency, 2012). Lead emissions are not an issue in this area, and will not be discussed further.

Air quality in a given region can be measured by its Air Quality Index value. The air quality index (AQI) is reported according to a 500-point scale for each of the major criteria air pollutants, with the worst denominator determining the ranking. For example, if an area has a CO value of 132 on a given day and all other pollutants are below 50, the AQI for that day would be 132. The AQI scale breaks down into six categories: good (AQI<50), moderate (50-100), unhealthy for sensitive groups (100-150), unhealthy (>150), very unhealthy and hazardous. The AQI is a national index, the air quality rating and the associated level of health concern is the same everywhere in the country. The AQI is an important indicator for populations sensitive to air quality changes.

Mean AQI values for San Juan County were generally in the good range (AQI<50) in 2013 with 80% of the days in that range. The median AQI in 2013 was 42, which indicates “good” air quality. The maximum AQI in 2013 was 156, which is “unhealthy”.

Although the AQI in the region has reached the level considered unhealthy for sensitive groups on several days almost every year in the last decade, there are no patterns or trends to the occurrences (Table 5). On 8 days in the past decade, air quality has reached the level of “unhealthy” and on two days, air quality reached the level of “very unhealthy”. In 2009 and 2012, there were no days that were “unhealthy for sensitive groups” or worse in air quality. In 2005 and 2013, there was one day that was “unhealthy” during each year. In 2010, there were five “unhealthy” days and two “very unhealthy days.”

Table 4. Number of Days classified as “unhealthy for sensitive groups” (AQI 101-150) or worse (U.S. Environmental Protection Agency, 2013a)

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Days	3	6	9	18	1	0	12	9	0	1

Hazardous Air Pollutants

The Air Resources Technical Report discusses the relevance of hazardous air pollutants (HAPs) to oil and gas development and the particular HAPs that are regulated in relation to these activities (BLM, 2014a). The EPA conducts a periodic National Air Toxics Assessment (NATA) that quantifies HAP emissions by county in the U.S. The purpose of the NATA is to identify areas where HAP emissions result in high health risks and further emissions reduction strategies are necessary. A review of the results of the 2005 NATA shows that cancer, neurological and respiratory risks in San Juan County are generally lower than statewide and national levels as well as those for Bernalillo County where urban sources are concentrated in the Albuquerque area (USEPA, 2012).

Climate

The analysis area is located in a semiarid climate regime typified by dry windy conditions and limited rainfall. Summer maximum temperatures are generally in the range of 80 or 90 degrees Fahrenheit (°F), and winter minimum temperatures are generally in the teens to 20s. Temperatures occasionally reach above 100°F in June and July and have dipped below zero in December and January. Precipitation is divided between summer thunderstorms associated with the southwest monsoon and winter snowfall as Pacific weather systems drop south into New Mexico. 6 shows climate normals for the 30-year period from 1981 to 2010 for the Farmington, New Mexico, area.

Table 5. Climate Normals for the Farmington Area, 1981-2010

Month	Average Temperature (^{O}F [(1)])	Average Maximum Temperature (^{O}F)	Average Minimum Temperature (^{O}F)	Average Precipitation (inches)

January	30.5	40.8	20.3	0.53
February	35.8	46.8	24.8	0.59
March	43.2	56.1	30.3	0.78
April	50.4	64.7	36.2	0.65
May	60.4	74.8	46.1	0.54
June	69.8	85.1	54.5	0.21
July	75.4	89.6	61.2	0.90
August	73.2	86.5	59.8	1.26
September	65.4	79.1	51.7	1.04
October	53.3	66.4	40.1	0.91
November	40.5	52.2	28.8	0.68
December	31.0	41.2	20.7	0.50
Source: data collected at New Mexico State Agricultural Science Center - Farmington (1) degrees Fahrenheit				

Very recently, pioneering research using space-borne (satellite and aircraft) determination of methane concentrations have indicated anomalously large methane concentrations may occur in the Four Corners region (Kort, Frankenberg, Costigan, Lindenmaier, Dubey, & Wunch, 2014). A subsequent study (Schneising, Burrows, Dickerson, Buchwitz, Reuter, & Bovensmann, 2014) indicated larger anomalies over other oil and gas basins in the U.S. Methane is 34 times more potent at trapping greenhouse gas emissions than CO_2 when considering a time horizon of 100 years (Intergovernmental Panel on Climate Change, 2013). While space-borne studies can determine the pollutant concentration in a column of air, these studies cannot pinpoint the specific sources of air pollution. Further study is required to determine the sources responsible for methane concentrations in the Four Corners region; however, it is known that a significant amount of methane is emitted during oil and gas well completion (Howarth, Santoro, & A.Ingraffea, 2011). Methane is also emitted from process equipment, such as pneumatic controllers and liquids unloading, at oil and gas production sites. Ground-based, direct source monitoring of pneumatic controllers conducted by the Center for Energy and Environmental Resources (Allen, et al., 2014) show that methane emissions from controllers exhibit a wide range of emissions and a small subset of pneumatic controllers emitted more methane than most. Emissions measured in the study varied significantly by region of the U.S., the application of the controller and whether the controller was continuous or intermittently venting. The Center for Energy and Environmental Resources had similar findings of variability of methane emissions from liquid unloading (Allen, et al., 2014a). In October 2012, USEPA promulgated air quality regulations controlling VOC emissions at gas wells. These rules require air pollution mitigation measures that reduce the emissions of volatile organic compounds. These same mitigation measures have a co-benefit of reducing methane emissions. Future ground-based and space-borne studies planned in the Four Corners region with emerging pollutant measurement technology may help to pinpoint significant, specific sources of methane emissions in the region.

The Air Resources Technical Report summarizes information about greenhouse gas emissions from oil and gas development and their effects on national and global climate conditions. While it is difficult to determine the spatial and temporal variability and change of climatic conditions; what is known is that increasing concentrations of GHGs are likely to accelerate the rate of climate change.

3.2.2. Impacts from Alternative B (the Proposed Action)

Methodology and assumptions for calculating air pollutant and greenhouse gas emissions are described in the Air Resources Technical Report. This document incorporates the sections discussing the modification of calculators developed by the BLM to address emissions for one horizontal oil well. The calculators give an approximation of criteria pollutant, HAP, and greenhouse gas (GHG) emissions to be compared to regional and national emissions levels. Also incorporated into this document are the sections describing the assumptions used in developing the inputs for the calculator (BLM, 2014a).

Direct and Indirect Impacts

Criteria Pollutants

Error! Reference source not found.7 shows estimated emissions from one proposed horizontal oil well for criteria pollutants, volatile organic compounds (VOC) and greenhouse gas (GHG). For comparison, Table 78 shows total human-caused emissions for each of the counties in the FFO and La Plata County, Colorado, based on USEPA's 2011 emissions inventory (U.S. Environmental Protection Agency, 2014).

Table 6. Criteria Pollutant and VOC Emissions Estimated for Construction of One Horizontal Oil Well; Average 25 Days to Drill and Complete

Activity	NOx	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CH4	CO2
One time operations (tons)*								
Construction	5.5	1.5	0.5	2.5	0.25	0.1	0.007	598.85
Completion	0.5	0.1	0.03	0.025	0.025	-	-	55.00
Interim Reclamation	0.006	0.006	0.006	0.001	-	0.003	-	1.24
Final Reclamation	0.006	0.006	0.006	0.001	-	0.004	-	1.66
Ancillary Operations (tons)								
Workover	0.129	0.04	0.01	0.01	0.01	-	-	10.59
Road Maintenance	-	-	-	-	-	-	-	0.26
Road Traffic	-	-	-	-	-	-	-	0.06
Annual operations (tons/yr)								
Oil Haul Truck and Small Truck (100 bbl/day)	0.009	0.006	0.0012	0.0009	0.0008	-	0.0001	3.88
Total	**6.13**	**1.64**	**0.55**	**2.54**	**0.29**	**0.11**	**0.01**	**671.54**

Oil storage tanks on the well location may result in venting of VOC. Oil well production is generally presented as barrels per day produced. The emissions calculator estimated that for every barrel per day produced there may be 0.12 tons of VOC vented per year.

The average horizontal oil well in the planning area produces approximately 100 barrels per day. One hundred barrels per day is estimated to result in 12 tons of VOC emissions per year. Oil storage tanks would be subject to current EPA regulations regarding the capture or flaring of VOC emissions.

Table 7. Analysis Area Emissions in Tons/Year, 2011

County	NO_X (1)	CO (2)	VOC (3)	PM_{10} (4)	$PM_{2.5}$ (5)	SO_2 (6)
McKinley	11,952.9	17,007.8	3,891.2	70,096.4	7,645.2	1,381.1
Rio Arriba	12,012.3	27,344.6	19,149.8	33,761.2	4,130.6	60.4
San Juan	42,231.5	63,568.9	26,110.8	76,638.3	9,201.0	5,559.3
Sandoval	4,143.8	19,513.9	4,373.1	39,343.0	4,510.8	109.3
La Plata	4,838.2	17,116.3	3,740.1	2,330.0	919.6	127.9
Total	**75,187.7**	**144,551.5**	**57,265.1**	**222,168.9**	**26,407.2**	**7,237.9**

(1) NO_X – nitrogen oxides
(2) CO – carbon monoxide
(3) VOC – volatile organic compounds
(4) PM_{10} – particulate matter with an aerodynamic diameter equal to or less than 10 microns

(5) $PM_{2.5}$ – particulate matter with an aerodynamic diameter equal to or less than 2.5 microns (6) SO_2 – sulfur dioxide

Table 8 displays the percent increase in total emissions in the analysis area from the proposed action to construct and operate one horizontal oil well.

Table 8. Percent Increase in Analysis Area Emissions from the Proposed Action

	NO_X(1)	CO(2)	VOC(3)	PM_{10}(4,5)	$PM_{2.5}$(5,6)	SO_2(5,7)
Total Emissions	75,187.7	144,551.5	57,265.1	222,168.9	26,407.2	7,237.9
Conventional Gas Well Emissions	6.13	1.64	12.55(8)	2.54	0.29	0.11
Percent Increase	**0.008**	**0.001**	**0.02**	**0.001**	**0.001**	**0.002**

(1) NO_X – nitrogen oxides
(2) CO – carbon monoxide
(3) VOC – volatile organic compounds
(4) PM_{10} – particulate matter with an aerodynamic diameter equal to or less than 10 microns
(5) Values derived from average emissions for any well drilling in the analysis area. Calculated results available upon request.
(6) $PM_{2.5}$ – particulate matter with an aerodynamic diameter equal to or less than 2.5 microns
(7) SO_2 – sulfur dioxide
(8) Current EPA regulations require operators to reduce VOC emissions by 95% if their oil storage tanks emit over six tons of VOC emissions per year

Hazardous Air Pollutants

The formulas used for calculating HAPs in the calculators are very imprecise. For many processes it is assumed that emission of HAPs will be equivalent to 10 percent of VOC emissions. Therefore, the estimated HAP emissions of 1.25 tons/year should be considered a very gross estimate. Most of the VOC emissions estimated for one horizontal oil well result from venting from oil storage tanks. Current EPA regulations require operators to reduce VOC emissions by 95% if their oil storage tanks emit over 6 tons of VOC emissions per year. A reduction of 95% of oil storage tank VOC emissions would reduce the estimated HAP emissions to 0.12 tons/year.

Total Greenhouse Gases

The available statewide GHG summary combines GHG emissions from CO2 and CH4. To compare the GHG emissions from the Proposed Action estimated by the calculator with statewide GHG emissions, CO2e emissions for both CH4 and CO2 were summed. The total statewide GHG emission estimate for 2007 was 76,200,000 metric tons CO2e (76.2 million metric tons; (New Mexico Environment Department, 2010). The estimated CO2e metric tons emissions from one horizontal oil well (609.2 metric tons) would represent a 0.0008 percent increase in New Mexico CO2 emissions.

Cumulative Impacts

The FFO manages federal hydrocarbon resources in San Juan, Sandoval, Rio Arriba, and McKinley Counties. There are approximately 21,150 active oil and gas wells in the San Juan Basin. About 14,843 of the wells in these counties are federal wells. Analysis of cumulative impacts for reasonable development scenarios and RFDS of oil and gas wells on public lands in the FFO was presented in the 2003 RMP. This included modeling of impacts on air quality. A more detailed discussion of Cumulative Effects can be found in the Air Resources Technical Report (BLM, 2014a).

The primary activities that contribute to levels of air pollutant and GHG emissions in the Four Corners area are electricity generation stations, fossil fuel industries, and vehicle travel. The Air Quality Technical Report includes a description of the varied sources of national and regional emissions that are incorporated here to represent the past, present, and reasonably foreseeable impacts to air resources (BLM, 2014a). It includes a summary of emissions on the national and regional scale by industry source.

Sources that are considered to have notable contributions to air quality impacts and GHG emissions include electrical generating units, fossil fuel production (nationally and regionally), and transportation.

The emissions calculator estimated that there could be very small direct and indirect increases in several criteria pollutants, HAPs, and GHGs as a result of implementing the proposed alternative. The very small increase in emissions that could result would not be expected to result in exceeding the NAAQS for any criteria pollutants in the analysis area.

The very small increase in GHG emissions that could result from implementing the proposed alternative would not produce climate change impacts that differ from the No Action Alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the action alternatives cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to predict with certainty the net impacts from the action alternatives on global or regional climate.

The Air Resources Technical Report (BLM, 2014a) discusses the relationship of past, present, and future predicted emissions to climate change and the limitations in predicting local and regional impacts related to emissions. It is currently not feasible to know with certainty the net impacts from particular emissions associated with activities on public lands.

3.3. Upland Vegetation

3.3.1. Affected Environment

The proposed project area is located within the Arizona/New Mexico Plateau ecological region. This ecological region occurs primarily in Arizona, Colorado, and New Mexico; a small portion is located within Nevada. This ecological region encompasses approximately 45,870,500 acres (185,632 square kilometers), and the elevation ranges from 2,165 to 11,949 feet AMSL. The ecological region's landscapes include low mountains, hills, mesas, foothills, irregular plains, alkaline basins, some sand dunes, and wetlands. This ecological region is a large transitional region between the semiarid grasslands to the east; the drier shrublands and woodlands to the north; and the lower, hotter, less-vegetated areas to the west and south. Vegetation communities include shrublands with big sagebrush (*Artemisia tridentata*), rabbitbrush (*Ericameria nauseosa*), winterfat (*Krascheninnikovia lanata*), shadscale saltbush (*Atriplex confertifolia*), and greasewood (*Sarcobatus vermiculatus*); and grasslands of blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula)*, and needleandthread grass (*Hesperostipa comata*). Higher elevations may support piñon pine and juniper woodlands. This ecological region includes the urban areas of Santa Fe and Albuquerque, New Mexico. Important land uses within this ecological region include irrigated farming, recreation, rangeland, wildlife habitat, and some natural gas production (Griffith, et al. 2006).

The proposed location, associated access road, and well connect pipeline sit at the north edge of a mesa top. The general region surrounding the proposed project area atop the mesa is characterized by relatively flat terrain that has been treated with tebuthurion (trade name "spike", targeting sage brush) to promote vegetative growth advantageous to rangeland and watershed health.. The north and west sides of the pad sit in close proximity to the edge of the mesa that has cut slopes created by water erosion. The base of the Mesa is characterized by badlands that fade into sagebrush flats with dispersed ephemeral drainages. The Kimbeto Wash to the north and the Betonnie Tsosie Wash to the south contribute to the shape and formation of the mesas in this area. The area has an overall gentle southwestern aspect. Slopes are nearly flat or slightly elevated across the entire project area. There are no major drainages and a few ephemeral drainages observed along the existing two track disturbance. The proposed project sits at an elevation of approximately 6696 AMSL.

The proposed project area vegetation is classified as sagebrush shrubland community. There are no trees located in the proposed West Lybrook UT #764H, #765, &#766H proposed project area. The dominant species' throughout the entire project area consisted of various grass species and hoary tansyaster (*Machaeranthera Canescens*). Due to spike events the big sagebrush (*Artemisia tridentata*) is predominantly dead throughout the project area. Ground cover was visually estimated, ranging from a

minimum of 25 percent to a maximum of 60 percent. No New Mexico Department of Agriculture Class A-listed species were found, though Halogeton *(Halogeton glomeratus)* a New Mexico Department of agriculture Class B-listed species was identified.

3.3.2. Impacts from Alternative B (the Proposed Action)

Direct and Indirect Impacts

During the construction phase of the proposed project, all vegetation within the 10.42-acre proposed project area could be cleared. During interim reclamation, approximately 6.76 acres of the proposed project area would be fully reclaimed (recontoured and reseeded). Approximately 1.12 acres would be reseeded only. The remaining 2.54 acres would remain as compacted, barren surface for the life of the proposed wells. During final reclamation, WPX would fully reclaim all portions of the proposed project area that were not fully reclaimed during interim reclamation. In order to fully reclaim the 1.12 acres of the proposed project area that were only reseeded during interim reclamation, WPX would need to first clear the vegetation from within these areas in order to recontour them.

During interim and final reclamation, the BLM Sagebrush Shrubland Community seed mixture would be utilized; the species included in these mixtures are listed in the Surface Reclamation Plan (Appendix D). Re-established vegetation would consist of native grass, forb, and shrub species included in the seed mixtures, as well as native species that are not deliberately planted. Following the reclamation process, the resulting vegetation community could differ from the native plant communities surrounding the proposed project area. Within reclaimed areas, it is not expected that the vegetation community would return to native conditions within 20 years (BLM 2003a, 4-18). The accumulation of fugitive dust on vegetation may impede vegetative growth and vigor. Impacts are likely to be low and moderate-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the Escavada Wash watershed, which may also impact vegetative cover, growth, and change in species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Livestock grazing
- Vegetation treatments
- Community development

105 oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of 78.75 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in 2116.21 acres of short-term disturbance from potential future development, with 1627.21 acres of that being reclaimed. This results in 489 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be 567.75 acres. This disturbance would have the same impacts as described for direct and indirect impacts. The Proposed Action would contribute 2.54 acres to that total and represents 0.45% of the total past, present and future disturbed area and 0.002% of the total analysis area of the cumulative impacts to upland vegetation.

Indirectly, fugitive dust or deposition and introduction of invasive species associated with existing roads, and wellpads in the immediate area could impact the vegetation within the spatial analysis area, and could continue to do so throughout the life of the proposed project. The proposed project would contribute to direct vegetation disturbance and fugitive dust and/or deposition.

Livestock grazing is expected to continue at the same rate and manner as it currently occurs and no change is expected in the reasonable foreseeable future. No vegetation treatments are planned for this area currently, or in the reasonable foreseeable future. Community development in the area is currently

minimal and is likely to increase in the future. This increase has not been quantified; however, it is expected to be deminimis based on the surrounding community development.

3.4. Noxious Weeds and Invasive Species

3.4.1. Affected Environment

In the San Juan Basin, invasive plants are frequently found in areas that have been disturbed by surface activities. Invasive species are generally tolerant of disturbed conditions, and often times outcompete native species. These plants may displace native plant communities and lead to the degradation of wildlife habitat. A total of 212 invasive and poisonous weeds have been identified on BLM-managed land (Heil and White 2000). The New Mexico Department of Agriculture (NMDA) has designated certain plants as state-listed noxious weeds and their current management classes for each species. The BLM uses the New Mexico statewide list as the baseline document to establish their primary noxious weed species of concern. Invasive plant species are managed on BLM lands through cooperative agreements between the BLM and the San Juan County Soil and Water Conservation District. Additionally, BLM works closely with other federal and state agencies, management groups, private landowners, and industry cooperators to address invasive plant management by incorporation prevention and control measures on projects proposed on BLM lands (BLM 2014b). During the field surveys of the proposed project areas, halogeton, a Class B- listed noxious weed species was the only noxious weed listed by the USDA, NMDA, or BLM-FFO.

3.4.2. Impacts from the Proposed Action

Direct and Indirect Impacts

Disturbed soils from the proposed project may provide an opportunity for the introduction and establishment of non-native invasive species. During construction and operation, noxious weed sources could be introduced to disturbed areas from vehicles, equipment, people, wind, water, or other mechanisms. There is the potential for non-native invasive weeds to establish or spread in the area. WPX would be responsible for monitoring and controlling any non-native invasive weed species within the permitted area for the life of the project. The re-vegetation of the disturbed area would reduce the potential for non-native invasive weeds to establish. Impacts are likely to be low and moderate-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the Escavada Wash watershed, which may also impact the potential for introduction and establishment of noxious weed species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Livestock grazing
- Vegetation treatments
- Community Development

105 oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of 78.75 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in 2116.21 acres of short-term disturbance from potential future development, with 1627.21 acres of that being reclaimed. This results in 489 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be 567.75 acres. The Proposed Action would contribute 2.54 acres to that total and represents 0.45% of the cumulative impacts to noxious weeds and invasive species.

Livestock grazing is expected to continue at the same rate and manner as it currently occurs, and no change is expected in the reasonable foreseeable future. No vegetation treatments are planned for this

area in the reasonable foreseeable future. Community development in the area is currently minimal and is likely to increase in the future. This increase has not been quantified, however it is expected to be deminimis based on the surrounding community development.

3.5. Wildlife

3.5.1. Affected Environment

General Wildlife

The vegetation community found within the proposed project area provides habitat for a variety of vertebrate and invertebrate species. The objectives of the BLM wildlife management program are to "ensure optimum populations and a natural abundance and diversity of fish and wildlife values by restoring, maintaining, and enhancing habitat conditions for consumptive and non-consumptive uses" (BLM 2003b, 2-24). The There are no trees located in the proposed West Lybrook UT #764H, #765, &#766H proposed project area. The dominant species' throughout the entire project area consisted of various grass species and hoary tansyaster (*Machaeranthera Canescens*). Due to spike events the big sagebrush (*Artemisia tridentata*) is predominantly dead throughout the project area. It receives year-long use by mule deer (*Odocoileus hemionus*) and lesser small mammals.

A discussion of wildlife identified within the proposed project area is provided in the BSR (Appendix B).

Migratory Birds

Executive Order (EO) 13186, dated January 17, 2001, calls for increased efforts to more fully implement the Migratory Bird Treaty Act of 1918. In keeping with this mandate, the BLM-FFO has issued an interim policy to minimize unintentional take, as defined by the EO, and to better optimize migratory bird efforts related to BLM-FFO activities. In keeping with this policy, a list of priority birds of conservation concern which occur in similar ecological regions similar to the proposed project area was compiled using the U.S. Fish and Wildlife Service's Information, Planning, and Conservation System (IPAC) (USFWS 2015). The U.S. Fish and Wildlife Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

The selected species have a known distribution in the BLM-FFO area and may be affected by various types of perturbations. These species and an evaluation of their potential to occur within the proposed project area are discussed in the BSR (Appendix B); a list of species identified within the proposed project area during the biological surveys is also provided.

Impacts from Alternative B (the Proposed Action)

Direct and Indirect Impacts

During the construction phase of the proposed project, all vegetation within the 10.42-acre proposed project area would be cleared. Approximately 2.54 acres would remain barren of vegetation for the long term. Reclaimed portions of the proposed project area would be converted to a reseed community following interim reclamation and final reclamation. The impacts to the vegetation communities are described in detail in Section 3.4 (Upland Vegetation). If interim and final reclamation are successful, sagebrush shrubland would become re-established within the proposed project area. However, as discussed in Section 3.4, the re-establishment of a mature, native plant community could require decades, and it is possible that the plant communities may not return to their original plant cover types within the action period of impacts considered (BLM 2003a, 4-19).

There is available, similar habitat in the surrounding area that wildlife could utilize. However, the clearing of vegetation and the transformation of the proposed project area to a reseed community would alter habitat and mosaic of the landscape currently utilized by wildlife species, including priority bird species.

It is assumed that habitat loss and fragmentation likely reduce the carrying capacity for wildlife, although the exact level of reduction cannot be quantified (BLM 2003a, 4-29). Roads are considered a greater contributor to the fragmentation of habitat, particularly for small species of wildlife, such as amphibians, reptiles and small mammals. Fragmentation would more likely result from construction within areas that are not adjacent to existing surface disturbance. Portions of initial surface disturbance that would result in habitat loss and/or potential fragmentation would include the 5.74 acres of wellpad/construction zone. For the long term, the proposed wellpad would represent 0.96 acres of new, long-term habitat fragmentation. The proposed access and pipeline corridor have been placed together within the same corridor and would result in approximately 848 feet of new disturbance corridor. The remaining length of access/pipeline corridor has been routed along an existing road in the area and would contribute approximately 30 feet of additional width, at most, to this existing corridor. As a result, overall fragmentation of the surrounding area has been reduced by utilizing the existing disturbance. As such, the threat of fragmentation from the proposed project in relation to existing disturbance is minimal.

For the long term, occasional human and vehicle presence within the vicinity of the proposed project area would increase above present levels. Additional well equipment could also cause increased noise levels in the vicinity. Audial and visual disturbances associated with the proposed project could cause indirect habitat loss by deterring wildlife from using available habitat adjacent to the proposed project area.

General Wildlife

It is possible that burrowing animals could be killed or injured during the construction phase of the proposed project, as equipment digs into the earth and rolls over the surface of the ground.

During the construction phase of the proposed pipelines, terrestrial wildlife could fall into the open pipeline trenches and be injured, stressed, or killed. The presence of open trenches could also disrupt normal wildlife movements to and from water and/or food sources. As discussed in Section 2.2.2 (Description of Proposed Project – Protection of Flora and Fauna, Including SSS and Livestock), design features and BMPs would be implemented during the construction phase of the proposed pipeline ties to assist in the prevention of injury, stress, or death of wildlife.

Migratory Birds

The proposed action would affect approximately 10.42 acres of potential migratory bird habitat. No trees will be removed. Habitat fragmentation or edge effects have been reduced where practicable by generally utilizing and expanding existing disturbance.

Due to the mobility of adult birds, they would be unlikely to be directly harmed by the proposed project. As discussed in Section 2.2.2 (Description of Proposed Project - Protection of Flora and Fauna, Including SSS and Livestock), if the vegetation-clearing phase of construction is scheduled to occur during migratory bird breeding season, a pre-construction migratory bird nest survey would be conducted within the associated proposed project area. Therefore, it is unlikely that nests, eggs, or young birds within the proposed project area would be directly harmed. If project activities occur during migratory bird breeding season, birds nesting outside of but near the proposed project area could abandon existing nests as a result of visual and audial disturbances.

It is difficult to predict the effects of the proposed project on migratory birds. The increased activity, noise, and disturbed vegetation associated with the proposed project could result in the increased usage of the immediate area by some migratory bird species, while decreasing usage by other species. Studies have shown mixed impacts of oil and gas development on nesting migratory birds. According to a study by Ortega and Francis (2007), the presence of oil and gas compressors affected bird species differently; however, there was no difference in overall nest density on plots with and without compressors. A study by Holmes and King (2006) found that the sage sparrow had lower nest survival in an area with ongoing gas development; however, the Brewer's sparrow had higher nest survival rates in a developed gas field when compared with populations in an undeveloped control area.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the Escavada Wash watershed, which may also impact habitat and wildlife species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Livestock grazing
- Vegetation treatments
- Community Development
- Recreation

105 oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of 78.75 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in 2116.21 acres of short-term disturbance from potential future development, with 1627.21 acres of that being reclaimed. This results in 489 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be 567.75 acres. The Proposed Action would contribute 2.54 acres to that total and represents 0.45% of the cumulative impacts to wildlife habitat. The proposed project may contribute to the reduction of potential available habitat within the spatial analysis area. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring. This disturbance would have the same impacts as described for direct and indirect impacts.

Livestock grazing is expected to continue at the same rate and manner as it currently occurs, and no change is expected in the reasonable foreseeable future. No vegetation treatments are planned for this area in the reasonable foreseeable future. Community development in the area is currently minimal and is likely to increase in the future. This increase has not been quantified; however, it is expected to be deminimis based on the surrounding community development.

3.6. Special Status Species

3.6.1. Affected Environment

The BLM manages certain species which are not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. BLM SSS include BLM Sensitive Species and BLM-FFO Special Management Species (SMS).

New Mexico BLM State Directors have developed a list of BLM Sensitive Species for the State of New Mexico (BLM 2011a, BLM 2011b, BLM 2011c, BLM 2012a). In accordance with BLM Manual 6840, the BLM-FFO has prepared a list of BLM-FFO SMS to focus species management efforts toward maintaining habitats under a multiple-use mandate (BLM 2008a, BLM 2008c). BLM-FFO SMS include some BLM Sensitive Species and other species for which the BLM-FFO has determined special management is appropriate (BLM 2008c). The authority for this policy and guidance is established by the ESA; Title II of the Sikes Act, as amended (16 USC 670a-670o, 74 Stat. 1052); FLPMA; and Department of Interior Manual 235.1.1A.

Based on known range and habitat, seven (7) BLM SSS have the potential to occur within the proposed project area. The SSS with the potential to occur within the proposed and alternative project areas are as follows:

- Bendire’s Thrasher: potential foraging and nesting habitat available
- Spotted bat: potential foraging habitat available

- Golden eagle (BLM SMS): potential foraging habitat available
- Prairie falcon: potential foraging habitat available
- Gunnison's prairie dog: potential habitat available
- Aztec gilia: Within mapped potential habitat
- Brack's hardwall cactus: Within mapped potential habitat

3.6.2. Impacts from Alternative B (the Proposed Action)

Direct and Indirect Impacts

Bendire's Thrasher

Impacts to Bendire's thrashers and pinyon jays would be similar to those described for migratory birds (Section 3.6.2 [Wildlife– Impacts from Alternative B (the Proposed Action) – Migratory Birds]).

Golden Eagle and Prairie falcon

These two BLM SSS raptors could potentially utilize the proposed project area for foraging. Due to the mobility of adult birds and the lack of available nesting habitat in the immediate vicinity, it is unlikely that these raptors would be directly harmed by activities associated with the proposed project. Indirect effects associated with disturbance to foraging habitat are described in Section 3.6.2 (Wildlife - Direct and Indirect Impacts – Migratory Birds).

Brack's Hardwall Cactus and Aztec Gilia

No Aztec gilia were identified during the surveys of the proposed project area. The survey was completed outside of the blooming period (late April to mid-June) for this species. Additionally, individuals of this species are typically very small and difficult to identify outside of the blooming period. As such, it is possible that individuals could have been overlooked during the survey.

No Brack's hardwall cactus were identified during the survey of the proposed project area. The survey was conducted outside of the blooming period (late April to mid-June) for this species. Additionally, individuals of this species are typically very small and difficult to identify outside of the blooming period. As such, it is possible that individuals could have been overlooked during the survey.

The proposed project would result in the disturbance of up to 10.42 acres of Aztec gilia/Brack's fishhook cactus habitat. Approximately 2.54 acres would remain as compacted, barren surface for the life of the proposed wells; for the long-term, this acreage would not provide potential habitat for these species. The remaining acreage would be reclaimed during interim reclamation, as described in Section 3.4 (Upland Vegetation); it is possible that Aztec gilia and Brack's fishhook cacti could become established within these reclaimed areas. During final reclamation, WPX would fully reclaim all portions of the proposed project area that were not fully reclaimed during interim reclamation (3.66 acres). In order to fully reclaim the 1.12 acres of the proposed project area that were only reseeded during interim reclamation, WPX would need to first clear the vegetation from within these areas in order to recontour them; during this process, it is possible that Aztec gilia and/or Brack's fishhook cacti that become established or reestablished within post-interim reclamation areas could be killed.

Gunnison's prairie dog

The action area would provide potential foraging and colonization habitat for this species. However, there are no prairie dog colonies observed within the project area. There are no recorded prairie dog colonies within close proximity to the action area according to the BLM mapped colonies GIS layer. There is similar foraging and colonization habitat available in the surrounding area that the species could utilize. Impacts would include the disturbance and modification of up to 10.42 acres of grassland and the long-term loss

of 2.54 acres of foraging and colonization habitat. Approximately 7.88 remaining acreage of the proposed disturbance would be reclaimed (reseeded only or recontoured and reseeded) during interim reclamation; these reclaimed areas could be used by Gunnison's prairie dogs for foraging and colonization. This species may occupy disturbed areas that may provide them with advantageous habitat like grasslands/shrublands and slight elevated areas. If interim and final reclamation are successful, native vegetation communities would become re-established within the proposed project area.

Spotted bat

Bats are nocturnal animals, and would likely be roosting during daylight hours, when the vegetation-clearing phase of the proposed project would occur. Because there are no roosting sites available within the proposed project area, it is unlikely that the spotted bat would be directly impacted as a result of the proposed project. It is possible that the clearing of vegetation within the proposed project area would remove habitat for bat prey. Disturbance to foraging habitat is described in Section 3.5.2 (Wildlife – Direct and Indirect Impacts).

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, Escavada Wash watershed, which may also impact BLM Special Status Species, through direct and effective habitat loss resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Livestock grazing
- Vegetation treatments
- Community Development
- Recreation

105 oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of 78.75 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in 2116.21 acres of short-term disturbance from potential future development, with 1627.21 acres of that being reclaimed. This results in 489 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be 567.75 acres. The Proposed Action would contribute 2.54 acres to that total and represents 0.45% of the cumulative impacts to BLM SSS species. The proposed project may contribute to the reduction of potential available habitat within the spatial analysis area. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring. This disturbance would have the same impacts as described for direct and indirect impacts and similar to those described for Wildlife (Section 3.6.2 [Wildlife - Impacts from Alternative B (the Proposed Action)]) and Upland Vegetation (Section 3.5.2 [Upland Vegetation - Impacts from Alternative B (the Proposed Action)]).

Livestock grazing is expected to continue at the same rate and manner as it currently occurs, and no change is expected in the reasonable foreseeable future. No vegetation treatments are planned for this area in the reasonable foreseeable future. Community development in the area is currently minimal and is likely to increase in the future. This increase has not been quantified; however, it is expected to be deminimis based on the surrounding community development.

3.7. Livestock Grazing

3.7.1. Affected Environment

The proposed project area is within BLM-FFO Kimbeto Community (06013) grazing allotment. The Kimbeto Community grazing allotment encompasses approximately 103,498 acres. A total of 2,931 cattle, 162 horse and 3,330 sheep federal Animal Unit Months (AUMs) are provided by this allotment. An AUM is

the amount of forage required to sustain a 1,000 lb cow and her calf, or five sheep, for the equivalent for one month. This allotment is permitted for 324 head of cattle, 15 horses and 1,554 head of sheep from March 1 thru February 28, annually.

Alternative B (The Proposed Action)

As discussed in Section 3.2 (Vegetation), the vegetation community within the proposed project area is sagebrush shrubland. No permanent livestock water sources or improvements are located within the proposed project area. The 10.42-acres that would be impacted would result in very minimal reduction in total area impacted in the short term within the grazing lease and an even smaller reduction in the long term from the 2.54 acres.

3.7.2. Impacts from Alternative B (the Proposed Action)

Direct and Indirect Impacts

The proposed project would remove livestock forage. During the construction phase of the proposed project, all vegetation within the limits of the proposed project area would be cleared; a total of approximately 10.42 acres of rangeland would be lost for the short term. Approximately 2.54 acres would remain as barren surface throughout the life of the wells for the entire project; therefore, a very minimal reduction to the total AUMs would be lost for the long term. The remaining acreage would be reclaimed during interim reclamation. Re-seed vegetation within reclaimed areas would consist of native plant species included in the BLM Sagebrush Shrubland Community Standard Seed Mixture, as well as "volunteers," or species that are not deliberately planted. The effects of the proposed project on livestock forage would depend on the success of reclamation.

Additional short-term impacts could include displacement of permitted livestock during construction activities or exposure of livestock to hazards. After construction and interim reclamation is completed, livestock should become acclimated to the proposed well facilities and traffic associated with them. Vehicle traffic associated with the wells could pose a direct threat to livestock, considering that the areas are within open range and livestock may be found on roads in the region.

Direct impacts to livestock could occur if pits are not excluded properly. Livestock injuries could occur if these animals fell into or tried to get out of pits. As discussed in Section 2.2.2 (Description of Proposed Project – Additional Design Features and BMPs), design features and BMPs would be implemented to reduce impacts of disturbance wildlife and livestock. Any negative impacts from the proposed project are likely to be low and moderate-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the Kimbeto Community grazing allotment, that may also impact forage production and increase hazards to livestock resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Vegetation treatments
- Recreation
- Community Development

57 oil and gas wells have been developed in the Kimbeto Community grazing allotment. These wells have resulted in a long-term disturbance of 42.75 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the Kimbeto Community grazing allotment may result in 699.00 acres of short-term disturbance from potential future development, with 537.00 acres of that being reclaimed. This results in 162.00 acres of long-term surface disturbance from potential future oil and gas development in the Kimbeto Community grazing allotment. The total surface disturbance from past, present, and reasonably foreseeable actions in the Kimbeto Community grazing allotment is 204.75

acres. The Proposed Action would contribute 2.54 acres to that total and represents 1.20% of the total past, present and future disturbed area and 0.002% of the total analysis area. The removal of 2.54 acres would result in a reduction of 0.05 cattle AUMs, 0.003 horse AUMs and 0.067 sheep AUMs and account for 0.002% of the total reduction of cattle AUMs, 0.002% of the total reduction of horse AUMs and 0.002% of the total reduction of sheep AUMs in the allotment from total long-term surface disturbance resulting from past, present and future oil and gas development.

Livestock grazing is expected to continue at the same rate and manner as it currently occurs, and no change is expected in the reasonable foreseeable future. No vegetation treatments are planned for this area in the reasonable foreseeable future. Community development in the area is currently minimal and is likely to increase in the future. This increase has not been quantified; however, it is expected to be deminimis based on the surrounding community development.

Indirectly, fugitive dust or deposition and introduction of invasive species associated with existing roads, and wellpads in the immediate area could impact the vegetation and subsequently range condition within the spatial analysis area, and could continue to do so throughout the life of the proposed project. The proposed project would contribute to direct rangeland loss. This disturbance would have the same impacts as described for direct and indirect impacts.

3.8. Cultural Resources

3.8.1. Affected Environment

The proposed project area is located within the archaeologically rich San Juan Basin of northwestern New Mexico. In general, the history of the San Juan Basin can be divided into five major periods: PaleoIndian (circa [ca.] 10,000 B.C. to 5,500 B.C.); Archaic (ca. 5,500 B.C. to A.D. 400); Basketmaker II-III and Pueblo I-IV (aka Anasazi; A.D. 1-1,540); and historic (A.D. 1,540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. Detailed descriptions of these various periods are provided in the BLM-FFO PRMP/FEIS (BLM 2003a, 3-66 – 3-86) and will not be reiterated here. Additional information can also be found in an associated documented, the Cultural Resources Technical Report (Science Applications International Corporation 2002).

BLM Manual 8100, The Foundations for Managing Cultural Resources (2004) defines a cultural resource as “a definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. (cf. “traditional cultural property”). Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit described in this Manual series. They may be but are not necessarily eligible for the National Register (a.k.a. "historic property”).

In the broadest sense cultural resources include sites, buildings, structures, objects, and districts/landscapes (NPS 1997). Cultural resources (prehistoric or historic) vary considerably, and can include but are not limited to simple artifact scatters, domiciles of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails. Traditional Cultural Properties (TCPs) are cultural resources that are eligible for the National Register of Historic Places (NRHP) and have cultural values, sometimes sacred, that transcend for instance the values of scientific importance that are normally ascribed to cultural resources such as archaeological sites and may or may not coincide with archaeological sites (Parker and King 1998). Historically Native American communities are most likely to identify TCPs, although TCPs are not restricted to those associations. Some TCPs are well known while others may only be known to a small group or otherwise only vaguely known. Native American tribal perspectives on what is considered a TCP are not necessarily limited by a places National Register eligibility or lack thereof.

The National Register of Historic Places (NRHP; 36 CFR Part 60) is the basic benchmark by which the significance of cultural resources are evaluated by a federal agency when considering what effects its actions may have on those resources. To summarize, to be considered eligible for the NRHP a cultural resource must meet one or more of the following criteria: a) are associated with events that have significantly contributed to the broad patterns of our history; or b) are associated with the lives of persons significant in our past; or c) embody distinctive characteristics of the type, period, or method of construction, or represents the work of a master, or possesses high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; or d) have yielded, or may be likely to yield, information that is important in a pre-history or history. The resource, as applicable, must possess one or more of the following aspects of integrity; location, design, setting, materials, workmanship, feeling, and association. In the event a determination of eligibility cannot be made, the resource is treated as eligible (a historic property).

Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800) requires federal agencies to consider what effect their licensing, permitting, funding or otherwise authorizing an undertaking, such as an APD or ROW, may have on properties eligible for the National Register. Pursuant to 36 CFR 800.16 (i), “Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.” Effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative. Area of Potential Effect (APE) means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is typically defined as areas to be directly disturbed and areas in immediate close proximity. Cultural resources are identified through a combination of literature review and pedestrian survey consistent with guidelines set forth in the Procedures for Performing Cultural Resources Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities (BLM 2005).

Cultural resources within the entire APE for the Proposed Action were identified by a literature review and an archaeological BLM Class III level (100%) pedestrian survey by LAC and a report was prepared and submitted to the BLM.

The Class III inventory identified no cultural sites within the APE (LAC Report No. 2015-2w (2015; BLM 2015(IV)015F). No TCPs are known to exist in the APE.

3.8.2. Impacts from Alternative A (the Proposed Action)

Direct and Indirect Impacts

Cultural resources tend to degrade over time from natural forces; however, many survive for hundreds or thousands of years. Any land-disturbing activity can disturb, damage, or uncover cultural resources. Direct impacts normally include alterations to the physical integrity of a historic property. If a historic property is significant for other than its information potential, direct impacts may also include the introduction of audible, atmospheric, or visual elements that are out of character for the property. A potential indirect impact from the proposed action, particularly in undeveloped areas is the increase in human activity or access to the area with an increased potential of unauthorized damage to historic properties. Direct impacts normally include alterations to the physical integrity of a cultural site. If a cultural site is significant for other than its scientific information, direct impacts may also include the introduction of audible, atmospheric, or visual elements that are out of character for the cultural site. A potential indirect impact from the proposed action is the increase in human activity or access to the area with the increased potential of unauthorized removal or other alteration to cultural sites in the area.

Historic properties are being avoided with the implementation of design features such as but not limited to reduction of construction areas, temporary barriers, and site monitoring. These design features are detailed in the Cultural Resource Record of Review, attached to the COA’s in the APD/ROW as the case may be. The proposed action is not known to physically threaten any TCP's, prevent access to sacred

sites, prevent the possession of sacred objects, or interfere or otherwise hinder the performance of traditional ceremonies/rituals. The proposed action will have no direct or indirect impact on historic properties (no historic properties affected).

Cumulative Impacts

The Cumulative Impacts Analysis Area (CIAA) is the associated watershed(s).The United States is divided and sub-divided into successively smaller hydrologic units which are classified into six levels nested within each other, from the largest geographic area (region) to the smallest geographic area (subwatershed). The boundaries are distinguished by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters (USGS 2013, NRCS 2013). Hydrologic units can be viewed as a naturally defined landscape and impacts to cultural resources in one part of that landscape could, theoretically, affect a broader understanding of the interrelationships between sites in the landscape as a whole. The smallest hydrologic unit area, typically from 10 to 40 K acres (15 to 62 mi^2; HUC 12) or combination thereof are used as the CIAA. The CIAA for cultural resources is the proposed project area and the Betonnie Tsosie Wash and Outlet Kimbeto Wash subwatersheds.

The Betonnie Tsosie Wash subwatershed is 34,130 acres. Based on New Mexico Cultural Resource Information System data (NMCRIS; July 2015), within the subwatershed there are 189 recorded sites and approximately 21% of the subwatershed (7,249 ac) has been inventoried for cultural resources by 118 unique investigations since 1975.

The Outlet Kimbeto Wash subwatershed is 20,238 acres. Based on New Mexico Cultural Resource Information System data (NMCRIS; July 2015), within the subwatershed there are 38 recorded sites and approximately 17% of the subwatershed (3,478 ac) has been inventoried for cultural resources by 45 unique investigations since 1975.

This inventory coverage for both subwatersheds is likely higher as not all survey data is digitally available (e.g., Navajo lands, surveys since July 2015). There are no properties listed on the National Register of Historic Places, New Mexico State Register of Cultural Properties, Chaco Protection Sites, World Heritage Sites, or National Historic Trails within the CIAA.

- What impacts would surface disturbance for the proposed action have on historic properties in the CIAA?

There will be no negative cumulative impact on known historic properties as they are being avoided by relocating the surface disturbing components of the proposed action away from the property. There will be no known negative cumulative impact on the landscape from the proposed action that would affect the seven aspects of integrity (location, design, setting, materials, workmanship, feeling, association) of known historic properties. The Proposed Action is ca. 10 miles from the boundary of Chaco Culture National Historical Park (CCNHP). Based on a GIS viewshed analysis only very small fragments of the linear aspects of the Proposed Action lie within the middle ground view of CCNHP Pueblo Alto and Tsin Kletsin site KOPs. Given distance from the sites (>13 miles) and low profile of the disturbance it will not be visible. A positive cumulative effect is the additional scientific information yielded by the archaeological survey both in terms of site specific information and the amount of the landscape inventoried for cultural resources.

- What impacts would the project have on unknown (buried, not visible) historic properties in the CIAA?

Risks of impacting unknown (i.e., buried) historic properties is normally negligible as cultural resources “discoveries” during surface disturbing components of a proposed action are infrequent in the FFO. Since FY2000, 28 discoveries have occurred in association with 21,290 actions (e.g. road, well, pipeline, etc.), or 1:760. During that period 153,626 ac of land were inspected for cultural resources, with an average of

7.2 ac per action and one discovery per 5,472 ac per discovery. All authorizations (e.g., APDs, R-O-Ws) have stipulations, under penalty of law, requiring the reporting of and avoidance of further disturbing cultural discoveries during a proposed action. Where the risk of discoveries can be reasonably expected (e.g., ≤ 100' of a known historic property, or in environmental settings known or suspected to be conducive to buried sites), archaeological monitoring by a qualified and permitted archaeologist during initial disturbance (e.g., blading, trenching) is normally required. If buried historic properties are discovered, collaborative steps are taken to protect them in place or recover their important information.

3.9. Public Health and Safety

3.9.1. Affected Environment

Worker safety is regulated under the Occupational Safety and Health Act of 1970, as amended (29 USC 651).

The proposed project area is fairly remote. The nearest town, Bloomfield (population 7,801 [U.S. Census Bureau 2015]), is approximately 42.9 road miles to the north-northwest, and U.S. Highway 550 is located approximately 5.1 road miles to the north. There are no BLM SMA managed for recreation areas located within the Escavada Wash watershed. The closest residence to the proposed project area is approximately 1.2 miles west-southwest.

The nearest hospital is in Farmington, New Mexico. This hospital is approximately 44 air miles or approximately 57 road miles from the proposed project.

3.9.2. Impacts from the Proposed Action

Direct and Indirect Impacts

The proposed project would affect transportation. During construction, the proposed project would result in increased traffic on area roads; some vehicles would be hauling heavy equipment. Therefore, there would be an increased potential for traffic accidents. Dust associated with construction activities or travel on dirt access roads may result in poor visibility in the area. The increased use of dirt access roads during muddy conditions may worsen the roads' conditions. Following construction and drilling, traffic levels would be similar to current levels; long-term effects on transportation would be positive due to the reduction of truck traffic from the piping of products from the location to a gathering system.

During construction, drilling, and maintenance activities, the operation of heavy equipment poses potential safety concerns. During the operation of the proposed well-connect pipelines, facility failure (such as pipeline ruptures) could represent a potential danger to the public. Impacts are likely to be low and long-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the BLM-FFO regional management area, which may also impact the general public's health and safety resulting from activities and operations in the area include the following:

- Oil and gas development, including associated roads and pipelines
- Traffic
- Community development
- Recreation

The general BLM-FFO region has been developed by the oil and gas industry for over six decades, which contributes to public health and safety concerns in the area. Transportation issues are a primary safety concern. Vehicles associated with the oil and gas industry utilize the developed highway and county road systems. In addition, the oil and gas industry constructs and utilizes dirt access roads in the area. These

roads, most of which are accessible by the public, are often hazardous, particularly during and following periods of inclement weather.

Additional safety concerns in the region include wildfire; oil and gas facility leakage or rupture; moving equipment (such as pump jacks); oil and gas explosions; and the handling, storage, and disposal of wastes, chemicals, or condensate.

28,870 oil and gas wells have been developed in the BLM-FFO region. Based on the RFD (Engler, et al., 2014), oil and gas development across the BLM-FFO region may result in a total of 3,590 oil and gas wells from potential future development. The total number of wells from past, present, and reasonably foreseeable actions in the BLM-FFO region is 32,460 acres. The proposed action would contribute three (3) wells to that total and represents .02% of the cumulative impacts to public health and safety from the initial development and long term operations associated with these wells. This disturbance would have the same impacts as described for direct and indirect impacts.

3.10. Environmental Justice

3.10.1. Affected Environment

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, requires that federal agencies identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

Environmental justice refers to the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws, regulations, programs, and policies. It focuses on environmental hazards and human health to avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Guidance on environmental justice terminology developed by the President's Council on Environmental Quality (CEQ 1997) is discussed below.

- Low-income population. A low-income population is determined based on annual statistical poverty thresholds developed by the US Census Bureau. In 2012, poverty level is based on total income of $11,720 for an individual and $23,283 for a family of four (US Census Bureau 2012a). A low-income community may include either a group of individuals living in geographic proximity to one another or dispersed individuals, such as migrant workers or Native Americans.
- Minority. Minorities are individuals who are members of the following population groups: American Indian, Alaskan Native, Asian, Pacific Islander, Black, or Hispanic.
- Minority population area. A minority population area is so defined if either the aggregate population of all minority groups combined exceeds 50 percent of the total population in the area or if the percentage of the population in the area comprising all minority groups is meaningfully greater than the minority population percentage in the broader region. Like a low-income population, a minority population may include either individuals living in geographic proximity to one another or dispersed individuals.
- Comparison population. For the purpose of identifying a minority population or a low-income population concentration, the comparison population used in this study is the state of New Mexico as a whole

Low-income Populations

Income and poverty data estimates for study area counties from the US Census Small Area Poverty Estimates model indicate that the percent of the population living below the poverty level in the socioeconomic study area as a whole is slightly above that of the state (21.3 percent and 20.6 percent), but it is much higher than the national average of 12.1 percent (Table 9). Poverty levels ranged from 37.7

percent in McKinley County to 13.7 percent in Sandoval County. Only that of Sandoval County was below the state average.

Table 9. Study Area County Population in Poverty (2002-2012)

	McKinley County	Rio Arriba County	Sandoval County	San Juan County	Study Area Total	New Mexico	United States
Percent of Population in Poverty 2002	21,766	7,165	19,934	22,152	71,017	421,123	34,569,951
	30.2%	17.7%	11.1%	18.2%	21.3%	20.6%	12.1%
Percent of Population in Poverty 2012	27,296	8,806	18,502	25,802	80,406	327,444	48,760,123
	37.7%	22.0%	13.7%	20.3%	21.5%	17.7%	15.9%
Median Household Income 2002	$25,197	$30,557	$45,213	$34,329	N/A	$34,827	$45,409
Median Household Income 2012	$29,821	$36,900	$57,376	$45,901	N/ A	$42,828	$51,371
Classified as Low Income Population in 2012 based on CEQ guidelines?	No	No	No	No	No	NA	NA
Source: US Census Bureau 2013							

Similarly, estimates from 2012 indicate that Sandoval and San Juan Counties had household median incomes ($57,376 and $45,901) that were above the state level of $42,828. McKinley County ($29,821) and Rio Arriba County ($36,900) were below that of the state in 2012 (Table 10). While no area communities meet the CEQ definition of a low-income population area (50 percent or higher), the highest poverty rates were seen in Bloomfield (29 percent), Espanola (26.3 percent), and Bernalillo (24.1 percent).

Table 10. Study Area Key Community Race/Ethnicity and Poverty Data

Community	% Population Racial or Ethnic Minority	Classified as Minority Population based on CEQ?	% of Individuals Below Poverty	Classified as Low-income Population based on CEQ?
Aztec	36.4%	No	14.4%	No
Bernalillo	78.8%	Yes	24.1%	No
Bloomfield	55.8%	Yes	29.0%	No
Espanola	91.6%	Yes	26.3%	No
Farmington	48.8%	No	15.5%	No
Gallup	76.9%	Yes	20.9%	No
Rio Rancho	46.7%	No	9.8%	No
Source: US Census Bureau 2012b Note: American Community Survey estimates are based on data collected over a 5-year time period. The estimates represent the average characteristics of populations between January 2008 and December 2012 and do not represent a single point in time.				

Census Tracts are geographic regions within the United States that are defined by the US Census Bureau in order to track changes in a population over time. Census Tracts are based on population sizes and not geographic areas. The average population of a Census Tracts is about 4,000 people, so rural areas that are sparsely populated may have very large Census Tracts while densely populated urban areas may have very small Census Tracts.

When broken down by Census Tract, 3 out of 87 tracts in the socioeconomic study area have greater than 50 percent of individuals living below the poverty line: Census Track 9440 in eastern McKinley County had an individual poverty rate of 54.6 percent; Census Tract 9405 in southwestern McKinley County had an individual poverty rate of 59.4 percent; and Census Tract 9409 in northwestern Sandoval County had an individual poverty rate of 51.9 percent (US Census Bureau 2012b). These 3 Census Tracts are all relatively large, indicating a sparsely populated, rural area.

Minority Populations

Based on 2008-2012 data, minorities made up 59.5 percent of the population in New Mexico, compared to 36.3 percent in the United States as a whole (Table 11). The proportion of minorities in the socioeconomic study area (65.3 percent) substantially exceeded the United States and is slightly higher than the state average. At the county level, the population ranged from 89.7 percent minority in McKinley County to 52.8 percent in Sandoval County. Within relevant tribal nations, Native Americans represented the vast majority of the population. The largest minority groups were Hispanics/Latinos in Rio Arriba and Sandoval Counties and Native Americans in McKinley and San Juan Counties.

Table 11. Study Area County Population by Race/Ethnicity (2008-2012)

Population	McKinley County	Rio Arriba County	Sandoval	San Juan	Study Area	New Mexico	United States	Jicarilla Apache Nation	Navaho Nation	Ute Mountain Nation
Hispanic or Latino ethnicity of any race	9,744	28,714	46,334	24,496	109,288	952,569	50,545,275	382	2,958	99
	13.6%	71.4%	35.3%	19%	29%	46.3%	16.4%	11.6%	1.7%	6.0%
White alone	7,413	5,370	61,977	54,218	128,978	831,543	196,903,968	74	3,762	47
	10.3%	28.6%	47.2%	42.2%	34.67%	40.5%	63.7%	2.3%	2.2%	2.9%
Black or African American alone	353	149	2,704	794	4000	35,586	37,786,591	0	250	5
	0.5%	0.4%	2.1%	0.6%	1.08%	1.7%	12.2%	0%	0.1%	0.3%
American Indian or Alaskan Native alone	52,358	5,629	15,964	46,676	120,627	176,766	2,050,766	2,692	162,920	1,429
	72.8%	14.0%	12.2%	36.3%	32.43%	8.6%	0.7%	82.0%	94.3%	87.0%
Asian alone	506	173	1,685	464	2828	25,411	14,692,794	73	834	14
	0.7%	0.4%	1.3%	0.4%	0.76%	1.2%	4.8%	2.2%	0.5%	0.9%
Native Hawaiian and Other Pacific Islander alone	38	7	100	72	217	989	480,063	0	209	0
	0.1%	0%	0.1%	0.1%	0.06%	<.01%	0.2%	0%	0.1%	0%
Some Other Race	7	22	437	84	550	3,623	616,191	0	102	0
	<.01%	0.1%	0.3%	0.1%	0.15%	0.2%	0.2%	0%	0.1%	0%
Two or more Races	1,469	137	2,101	1,796	5,503	28,800	6,063,063	62	1,660	49
	2.0%	0.3%	1.6%	1.4%	1.48%	1.4%	2.0%	1.9%	1.0%	3.0%
Classified as Minority Population based on CEQ guidelines?	Yes	Yes	Yes	Yes		Yes	NA	Yes	Yes	Yes

Source: US Census Bureau 2012b
Note: American Community Survey estimates are based on data collected over a 5-year time period. The estimates represent the average characteristics of populations between January 2008 and December 2012 and do not represent a single point in time

Based on the CEQ definition of a minority population area (minority residents exceed 50 percent of all residents), Bernalillo, Bloomfield, Espanola, and Gallup all are considered minority communities.

When examined at the Census Tract level, there are 24 out of 87 tracts that have a minority population greater than 50 percent. These range from Census Tract 6.1 located just north of the city of Aztec with a minority population of 80.5 percent to Census Tract 107.17 located north of the city of Rio Rancho with a minority population of 50.2 percent (US Census Bureau 2012b). These Census Tracts are relatively small and are based around the city of Rio Rancho and the Aztec/Farmington/Bloomfield area.

Native American Populations

Data in Table 11 account for a substantial portion of the study area population in some areas, notably McKinley and San Juan Counties, where the population is 72.8 and 36.3 percent American Indian respectively. Three tribal governments have reservations within the planning area: the Jicarilla Apache Nation, the Navajo Nation, and the Ute Mountain Nation (Table 12). The Southern Ute Nation has lands just north of the planning area in the state of Colorado, but none within the planning area. Almost one half of the planning area is tribal lands. Each tribe maintains a general concern for protection of and access to areas of traditional and religious importance, and the welfare of plants, animals, air, landforms, and water on reservation and public lands. Policies established in 2006 by the BLM and US Forest Service, in coordination with federal tribes, ensure access by traditional native practitioners to area plants. The policy also ensures that management of these plants promotes ecosystem health for public lands. The BLM is encouraged to support and incorporate into their planning traditional native and native practitioner plant-gathering for traditional use (Boshell 2010).

Table 12. Tribal Nations in the Planning Area

Tribe	Acres in Planning Area	General Location
Jicarilla Apache Nation	739,600	The majority of the Jicarilla Apache Nation is located in western Rio Arriba County, but within the eastern portion of the planning area
Navajo Nation	860,900	A portion of the Navajo Nation extends into western San Juan County and into the western portion of the planning area
Ute Mountain Nation	103,500	A portion of the Ute Mountain Nation extends into the northern portion of San Juan County, just east of the Navajo Nation, and into the northern portion of the planning area
Unknown	196,300	Lands located in the southern portion of the planning area [Note to BLM: this is due to inconsistencies between US Census Bureau tribal areas dataset and BLM land status dataset.]
Source: BLM GIS 2014, US Census Bureau 2014		

3.10.2. Impacts from Alternative A (the Proposed Action)

Direct and Indirect Impacts

As noted in the PRMP/FEIS, most activities, including oil and gas development on federal land in the San Juan Basin occur without influence of demographic or income values. They are primarily the response of various resource values and are balanced for overall public benefit. San Juan County, along with the other counties that make up the larger development area, has a high proportion of minority populations compared to the state and national percentages. San Juan County has a distinctly high percentage of American Indians, while Rio Arriba has a large Hispanic population. The poverty levels for all counties, except Sandoval County were higher than the state and national level. As such, the potential exists for minority and low-income populations to be affected by the proposed action.

Specific issues of concern outlined in the PRMP/FEIS include the potential for economic impacts (such as job losses or increases), potential for land use impacts (as outlined in previous sections), and the potential for conditions that pose a public health or safety risk. The development and production of the proposed wells would allow WPX to develop their leases and provide additional natural gas and oil for the national energy market. This would generate federal and state tax revenues as well as revenue for WPX, its contractors, and additional jobs, royalties, and revenues to local economies. The additional jobs and economic activity in the region from oil and gas development have the potential to benefit local

communities and residents and is considered a positive effect. The three proposed wells would be part of an increase from the larger scale oil and gas development in the region. Potential land use impacts and public health and safety risks have been addressed in both previous sections of this document and/or the PRMP/FEIS. Project specific design features and best management practices (Section 2.2.2), as well as COAs attached to the approved APDs and stipulations in the ROW Grants, help to reduce adverse impacts to the surrounding communities as they relate to land use and public health and safety. See PRMP/FEIS for further discussion of Environmental Justice (BLM 2003a).

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the BLM-FFO regional management area, which may also impact local communities resulting from activities and operations in the area include the following:

- Oil and gas development, including associated roads and pipelines
- Commercial and agricultural development
- Community development
- Recreation and tourism

The proposed action would contribute to the effects of the local economy in the form of increased natural gas production, new jobs and increased revenues. Any additional well development and production in the area would result in incremental impacts to local economy. The energy industry is subject to boom and bust cycles. However, the continued development of these resources still represents a desirable economic engine. With the development of these resources being concentrated in Rio Arriba and San Juan counties that both have disproportionately minority population, benefits from growth in resource development both federal and non-federal interests would provide jobs and therefore benefit these groups (BLM 2003a, 4-129).

3.11. Transportation and Travel

3.11.1. Affected Environment

The project area is located in San Juan County, NM. The proposed area would be accessed utilizing U. S. Highway 550. U.S. Highway 550 carries a significant amount of high-speed traffic, consisting of both light and heavy vehicles. The resource road utilized to access the site off of County Road 7890 sees very little traffic, due to minimal community and/or oil and gas development in the immediate area. County Road 7890 sees increased traffic levels. Once off of County Road 7890, the expected traffic is relatively light, with use by oil and gas personnel and few residents that live in the surrounding area.

3.11.2. Impacts from Alternative A (the Proposed Action)

Direct and Indirect Impacts

Under the proposed action, increased use of the area by construction vehicles and personnel could result in a safety issue for the public. The proposed new access routes utilize existing disturbance where practicable and will contribute approximately 848 feet of additional road in the area. For existing County Roads or roads that are considered collector roads, WPX will defer to the county or to the Roads Committee for maintenance determinations on collector roads. The BLM has designated Roads Committees for the maintenance of collector roads. The committees consist of all participating operators with projects along those subject roads. Roads will be maintained in the same or better condition as existed prior to the commencement of operations, and maintenance will continue until final abandonment and reclamation of the well location. Traffic impacts from routine maintenance personnel at the well sites would be ongoing throughout the production life of the well.

The proposed action would result in short-term increases in the volume of both heavy and light traffic during the construction, drilling and completion phases of the project. The action area is rural, but

travelers of the area could be impacted in the short term by the construction of access roads and pads, drill-rig moves, and pipeline construction. These impacts would be reduced after well completion. It is anticipated that two to three pick-up truck would visit each of the proposed wellpad daily during the normal work week, resulting in road degradation, fugitive dust and equipment related noise. As discussed in Section 2.2.2 (Description of Proposed Project – Additional Design Features and BMPs), design features and BMPs would be implemented to reduce impacts of disturbance from vehicles and to increase public safety. Impacts are likely to be low and short-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the analysis area, the BLM-FFO regional management area, which may also traffic impacts resulting from increased activities include the following:

- Oil and gas development, including associated roads and pipelines
- Community development
- Recreation and tourism

The cumulative impacts of oil and gas development fluctuate as abandoned wells are reclaimed and the construction of new access roads and wellpads results in new surface disturbance. The impacts of increased roadway use, including dust generation and air, water and noise pollution would be incremental to the surrounding impacts to transportation networks in the area.

4. SUPPORTING INFORMATION

4.1. Tribes, Individuals, Organizations, or Agencies Consulted

Table 13 contains a list of tribes, individuals, organizations, and agencies invited to attend the on-site for the project.

Table 13. Tribes, Individuals, Organizations, and Agencies Invited to the On-Site

Name	Tribe, Organization, or Agency	Attended On-Site
Heather Riley	WPX	No
Andrea Felix	WPX	No
Lacey Granillo	WPX	No
Mark Lepich	WPX	Yes
Steven Fuller	LAC	Yes
Fred Harden	LAC	No
Johnny Stinson	Adobe Contractors, Inc.	Yes

The BLM fulfills its responsibilities under the National Historic Preservation Act (NHPA) through a number of agreements. The National Programmatic Agreement (NPA; 2012) between the BLM, Advisory Council on Historic Preservation (ACHP), and the National Council of State Historic Preservation Officers (NCSHPO) allows the agency to fulfill its NHPA responsibilities according to the provisions of the NPA in lieu of 36 CFR 800.3 through 800.7 regulations. The NPA, which applies to all BLM activities below specified thresholds, provides among other things, regulatory relief in many instances from the requirement for case-by-case review by State Historic Preservation Officers (SHPOs) and the ACHP, in exchange for managers' maintenance of appropriate staff capability and observance of internal BLM standards as set out in the 8100 Manual series.

The New Mexico BLM has a two-party protocol with the New Mexico SHPO (2014) specifically encouraged by the NPA. This protocol details how the New Mexico BLM and SHPO will regulate their relationship and consult. Specifically, this document outlines among other things, how and when consultation will be conducted between the BLM, SHPO, Tribes, and the public. The protocol also outlines when case-by-case SHPO consultation is or is not required for specific undertakings and the procedures for evaluating the effects of common types of undertakings and resolving adverse effects to historic properties. These common types of undertakings regularly include the common actions undertaken in the BLM FFO.

4.2. List of Preparers

This EA was prepared by EIS in conformance with the standards of and under the direction of the BLM-FFO. The following individuals assisted in the preparation of this EA:

- Mindy Paulek, Biologist, EIS
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- Jim Copeland, Archaeologist, BLM-FFO
- Sherrie Landon, Paleontologist and Environmental Protection Specialist, BLM-FFO
- Esther Willetto, Tribal Program Coordinator, BLM-FFO
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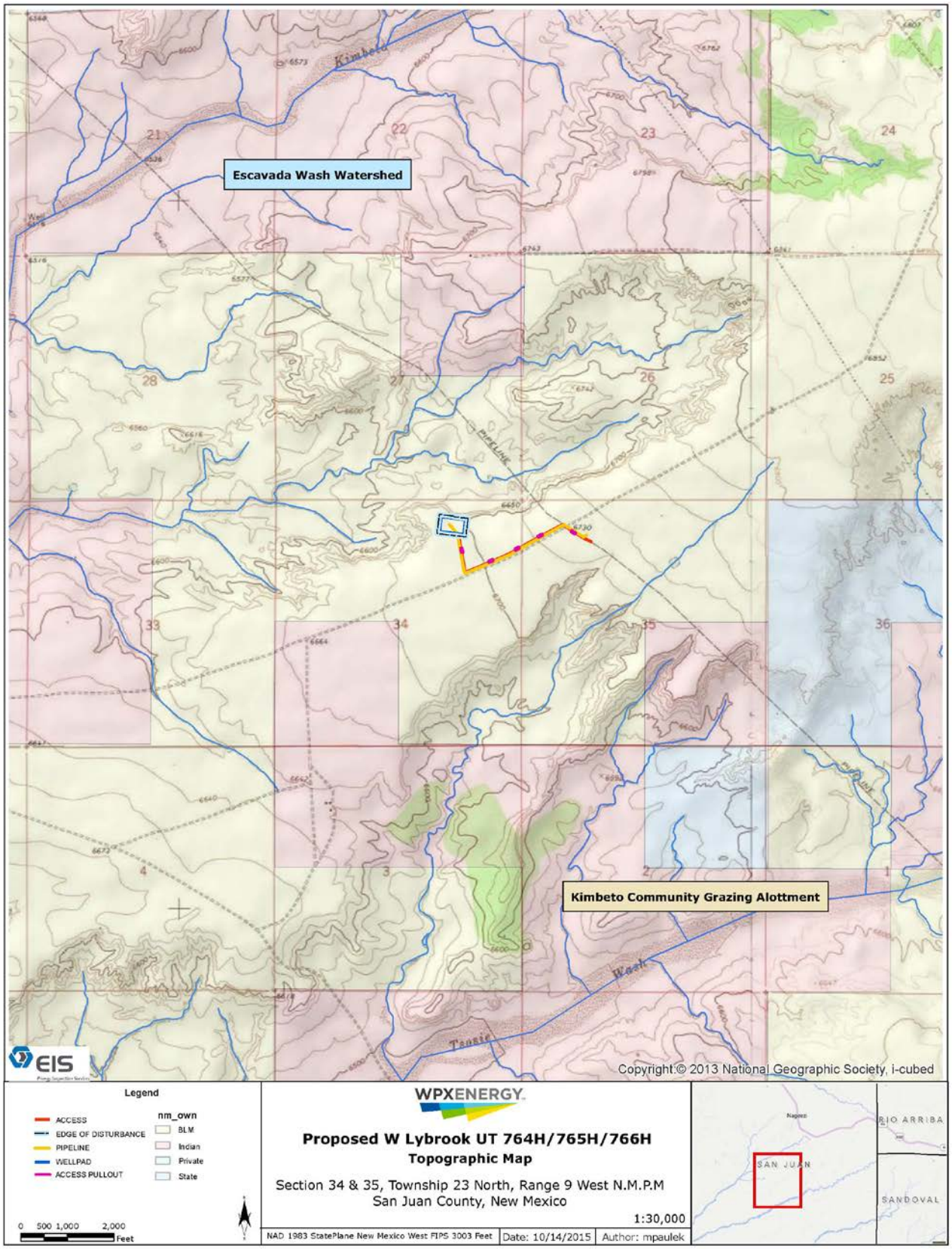
APPENDIX A. MAPS



Legend

- ACCESS
- EDGE OF DISTURBANCE
- PIPELINE
- WELLPAD
- ACCESS PULLOUT

nm_own

- BLM
- Indian
- Private
- State

0 500 1,000 2,000 Feet

WPXENERGY

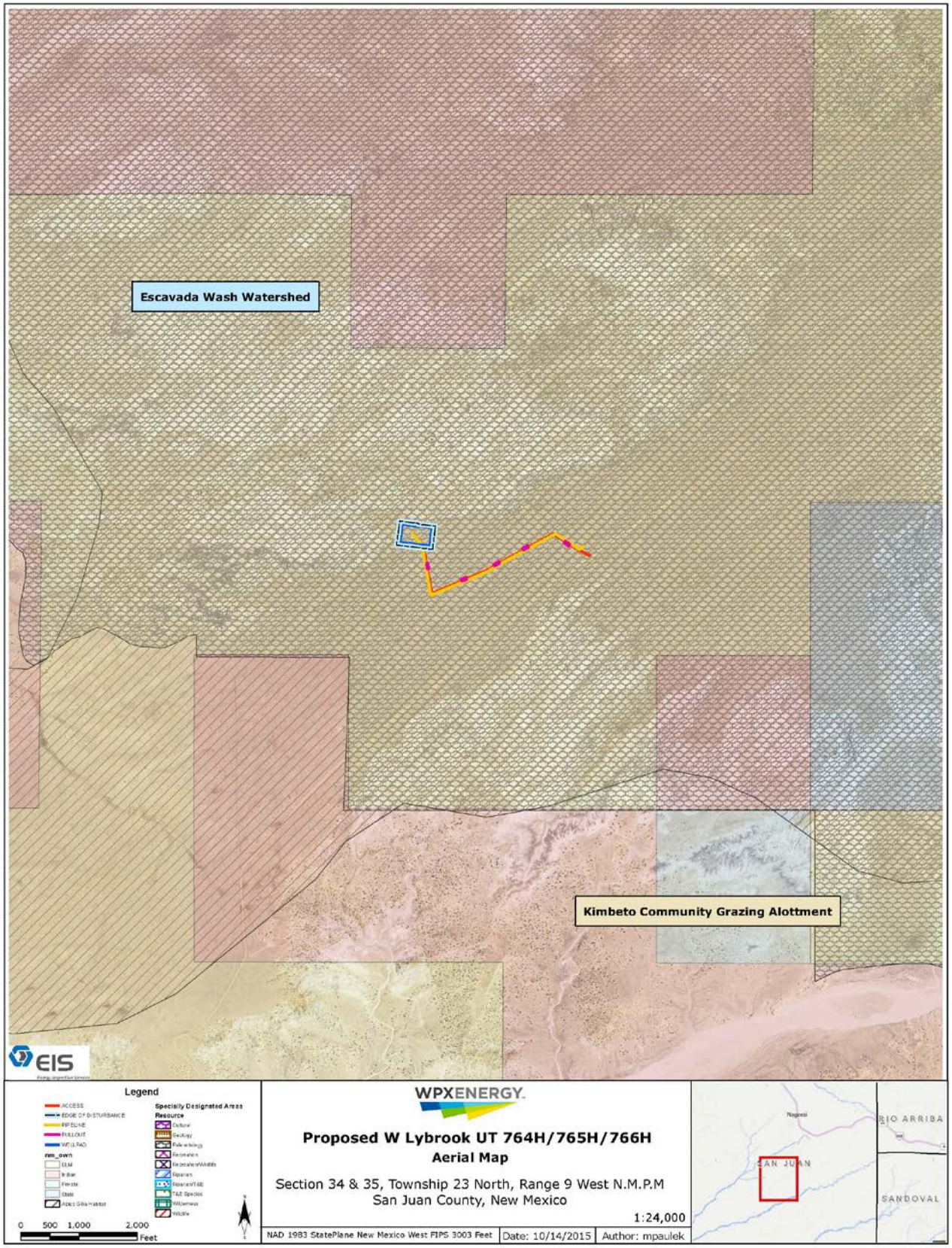
Proposed W Lybrook UT 764H/765H/766H

Topographic Map

Section 34 & 35, Township 23 North, Range 9 West N.M.P.M
San Juan County, New Mexico

1:30,000

NAD 1983 StatePlane New Mexico West FIPS 3003 Feet | Date: 10/14/2015 | Author: mpaulek


Escavada Wash Watershed
Kimbeto Community Grazing Alottment
EIS
Legend
ACCESS
EDGE OF DISTURBANCE
PIPELINE
PULLOUT
WELLPAD
nm_own
BLM
Tribal
Private
State
Navajo Gila Habitat
Specially Designated Areas
Resource
Cultural
Geology
Paleontology
Recreation
Recreation/Wildlife
Riparian
Riparian/T&E
T&E Species
Wilderness
Wildlife
0 500 1,000 2,000
Feet
WPXENERGY
Proposed W Lybrook UT 764H/765H/766H
Aerial Map
Section 34 & 35, Township 23 North, Range 9 West N.M.P.M
San Juan County, New Mexico
1:24,000
NAD 1983 StatePlane New Mexico West FIPS 3003 Feet
Date: 10/14/2015
Author: mpaulek
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APPENDIX B. PLATS

APPENDIX C. PHOTOGRAPHS

Photo Number:	1	**Location:**	W Lybrook UT #764H/#765/#766H (corner 6)
		Photo Direction:	Northwest

Photo Number:	2	**Location:**	W Lybrook UT #764H/#765/#766H (corner 5)
		Photo Direction:	Northeast

Photo Number:	3	**Location:**	W Lybrook UT #764H/#765/#766H (corner 3)
		Photo Direction:	Southeast

Photo Number:	4	**Location:**	W Lybrook UT #764H/#765/#766H (corner 2)
		Photo Direction:	Northeast

Photo Number:	5	**Location:**	W Lybrook UT #764H/#765/#766H (center stake)
		Photo Direction:	North

Photo Number:	6	**Location:**	W Lybrook UT #764H/#765/#766H (center stake)
		Photo Direction:	East

Photo Number:	7	**Location:**	W Lybrook UT #764H/#765/#766H (center stake)
		Photo Direction:	South

Photo Number:	8	**Location:**	W Lybrook UT #764H/#765/#766H (center stake)
		Photo Direction:	West

Photo Number:	9	**Location:**	W Lybrook UT #764H/#765/#766H Access/Pipeline Start
		Photo Direction:	Southwest

Photo Number:	10	**Location:**	W Lybrook UT #764H/#765/#766H Access/Pipeline End
		Photo Direction:	North

APPENDIX D. SURFACE RECLAMATION PLAN

APPENDIX E. RESPONSE TO PUBLIC COMMENTS

This appendix displays substantive comments received by BLM during the comment period on the Draft Environmental Assessment (EA) DOI-BLM-NM-F010-2016-0016 for the WPX Energy Production, LLC and WPX SJB Gathering, LLC's West Lybrook UT #764H, #765H, and #766H Oil and Natural Gas Wells Project. The EA was posted on the Bureau of Land Management Farmington Field Office (BLM-FFO) website for a 30-day public comment period on Date Posted. One comment letters was received from the Western Environmental Law Center, San Juan Citizens Alliance, Dine Citizens Against Ruining our Environment, WildEarth Guardians, and the Natural Resources Defense Council.

A substantive comment does one or more of the following:

- Questions, with reasonable basis, the accuracy of information in the environmental assessment.
- Questions, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis.
- Presents new information relevant to the analysis.
- Presents reasonable alternatives other than those analyzed in the environmental assessment.
- Causes changes or revisions in one or more of the alternatives.

Substantive comments are displayed in the table below, along with the commenting agency or organization. In the Response column, a response is provided or the reader is directed to the section of the document where the comment has been addressed.

Comment	Response
The BLM must immediately impose a moratorium on the issuance of new APDs and leases that aim to exploit the Mancos shale. The agency is required to suspend all oil and gas leasing and development in the planning area until the Farmington RMPA and EIS are finalized. In addition, the BLM must deny or defer APDs until the Farmington RMPA and EIS are finalized.	This EA does not analyze leasing activities. As such, any comments regarding leasing activities are outside the scope of the EA. With regard to APDs, the BLM Land Use Planning Handbook (H-1601-1) states: During the amendment or revision process, the BLM should review all proposed implementation actions through the NEPA process to determine whether approval of a proposed action would harm resource values so as to limit the choice of reasonable alternative actions relative to the land use plan decisions being reexamined…A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment. These decisions would be specific to individual projects or activities and must not lead to an area-wide moratorium on certain activities during the planning process (page. 47). This EA represents BLMs NEPA review of the proposed APDs. The BLM continues appropriately to rely on analysis in the 2003 RMP for the Farmington Field Office. The APDs under consideration are supported by NEPA analysis under the 2003 RMP and by the additional site-specific analysis in this EA. The approval of the proposed APDs will not limit the choice of reasonable alternatives because the APDs are associated with an existing lease, the development of which represents a valid existing right.