ENVIRONMENTAL ASSESSMENT

EA No. NM-FOl0-2011-15

CONOCOPHILLIPS COMPANY
DAY#SN

PROPOSED NATURAL GAS WELL
AND PIPELINE PROJECT
LEASE NUMBER USA SF-078414

Prepared for:

BUREAU OF LAND MANAGEMENT
FARMINGTON FIELD OFFICE

Prepared by:

ECOSPHERE ENVIRONMENTAL SERVICES

September 2010

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1.0 INTRODUCTION

ConocoPhillips Company (COPC) has proposed vertically drilling the Day #5N natural gas well in San Juan County, New Mexico. The legal coordinates for the proposed surface location are:

710' FSL (from the south line), 1,886' FEL (from the east line)
Section 18, Township 29 North, Range 08 West
New Mexico Principal Meridian (NMPM)

Surface disturbance activities associated with drilling the gas well would entail construction of a new well pad and access road, and installation of a new subsurface well tie pipeline. The proposed project area is located approximately 1.3 miles south of U.S Highway 64 and 6.2 miles east of Blanco, New Mexico. COPC has filed an Application for Permit to Drill (APD) for the natural gas well with the Bureau of Land Management Farmington Field Office (BLM/FFO). If the well is productive, Enterprise Field Services LLC (Enterprise) would file for a right-of-way (ROW) grant with the BLM/FFO to construct and operate the proposed well tie pipeline. The proposed gas well project would be located on public lands with the federal mineral estate administered by the BLM/FFO.

1.1 Purpose and Need

The purpose of the proposed action is to allow the applicant to produce gas or oil from a valid federal mineral lease USA SF-078414. This lease was issued by the BLM on September 1, 1950 and subsequently acquired by COPC. This lease incorporates 1,692.6 total acres in Township 29N, Range 8W, Sections 7, 8, 17, and 18. 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. The Mineral Leasing Act of 1920, as amended (30 USC [United States Code] 181 et seq.), authorizes the BLM to issue oil and gas leases for the exploration of mineral resources and permit the development of those leases. The existing lease is a binding legal contract that allows development of the mineral by the holder. An approved APD, issued by the BLM, would authorize COPC to construct and drill the proposed well.

1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this Environmental Assessment (EA) tiers into and incorporates by reference the information and analysis contained in the Farmington Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) (BLM *2003a)*, which was approved as the Final Resource Management Plan for the BLM/FFO by the Record of Decision (ROD) signed September 29, 2003 (BLM *2003b)*. The PRMP/FEIS and ROD are available for review at the FFO, Farmington, New Mexico or electronically at http://www.nm.blm.gov/ffo/ffo_home.html. This project EA addresses site specific resources and/or impacts that are not covered within the PRMP/FEIS, as required by the National Environmental Policy Act of 1969 (NEPA), as amended (Pub. L. 91-90, 42 USC 4321 et seq.). The proposed project would not be in conflict with any local, county, or state plans.

1.3 Federal, State or Local Permits, Licenses or Other Consultation Requirements

Under Section 402 of the Clean Water Act (CWA) (as amended), the U.S. Environmental Protection Agency (USEPA) regulates storm water discharges from industrial and construction activities under the National Pollutant Discharge Elimination System program. Additionally, Sections 404 of the Act, regulated by the U.S. Army Corps of Engineers, and Section 401 of the Act, regulated by the New Mexico Environment Department (NMED) or USEPA (depending upon surface ownership), protect wetlands and waters of the U.S. Operators are required to obtain all necessary permits and approvals for projects requiring CWA permits prior to any disturbance activities.

The New Mexico Energy, Minerals and CBM Resources Department requires oil and gas operators to follow "pit rule" guidelines contained with NMAC 19.15.17 to reduce the potential for ground water contamination from industry related activities.

The Endangered Species Act of 1973 requires all federal departments and agencies to conserve threatened and endangered species and the habitats on which they depend, and to consult with the U.S. Fish and Wildlife Service (USFWS), on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or adversely modify critical habitat.

Compliance with Section 106, responsibilities of the National Historic Preservation Act, are adhered to by following the BLM – New Mexico State Historic Preservation Office protocol agreement, which is authorized by the National Programmatic Agreement between the BLM, the Advisory Council on Historic Preservation, and the National Conference of Council of State Historic Preservation Officers.

Additionally, COPC will:

- Comply with all applicable federal, state, and local laws and regulations.
- Obtain the necessary permits for the drilling, completion and production of the well, including water rights appropriations, the installation of water management facilities, water discharge permits, and relevant air quality permits.
- Certify that a Surface Use Agreement has been reached with the private landowner, where required.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Alternative A- No Action

The BLM NEPA Handbook (H-1790-1) states that for EAs on externally initiated proposed actions, the No Action Alternative generally means that the proposed activity will not take place. This option is provided in 43 CFR 3162.3-2 (h) (2). This alternative would deny the approval of the APD and the current land and resource uses would continue to occur in the proposed project area. No mitigation measures would be required.

2.2 Alternative B - Proposed Action

Proposed Action Title/Type: Day #5N natural gas well project/Application for Permit to Drill and Right-of-Way Grant
County: San Juan, New Mexico
Applicant(s): ConocoPhillips Company and Enterprise Field Services, LLC
Surface Owner: BLM
Mineral Estate: Federal

COPC has filed an APD for the proposed vertical drilling of natural gas well to access the Blanco Mesaverde/Basin Dakota mineral estate administered by the BLM/FFO. The proposed well would be constructed on undisturbed lands at 710' FSL and 1,886' FEL in Section 18 of Township 29 North, Range 08 West, NMPM, in San Juan County, New Mexico. The legal coordinates for the proposed well tie pipeline are SW V4 of the SE V4 of Section 18, Township 29 North, Range 08 West, NMPM. A project vicinity area map is provided as Figure 1. The proposed action is shown on the Cutter Canyon, New Mexico, U.S. Geological Survey 7.5-minute quadrangle map as Figure 2.

Drilling of the proposed natural gas well project would require construction of a 230-foot (ft) by 300-ft well pad with a 50-ft wide construction zone around the perimeter of the well pad. The maximum permitted disturbance for construction of the proposed well pad would be 3.03 acres, with about 1-acre of long-term disturbance associated with operation of the proposed well. The proposed well pad would require fills of up to 4.2 and cuts up to 2.5 ft to construct a level drilling location. A new, 111-ft access road would be constructed within a 20-ft right corridor from the edge of the existing road a maximum surface disturbance of 0.08 acre.

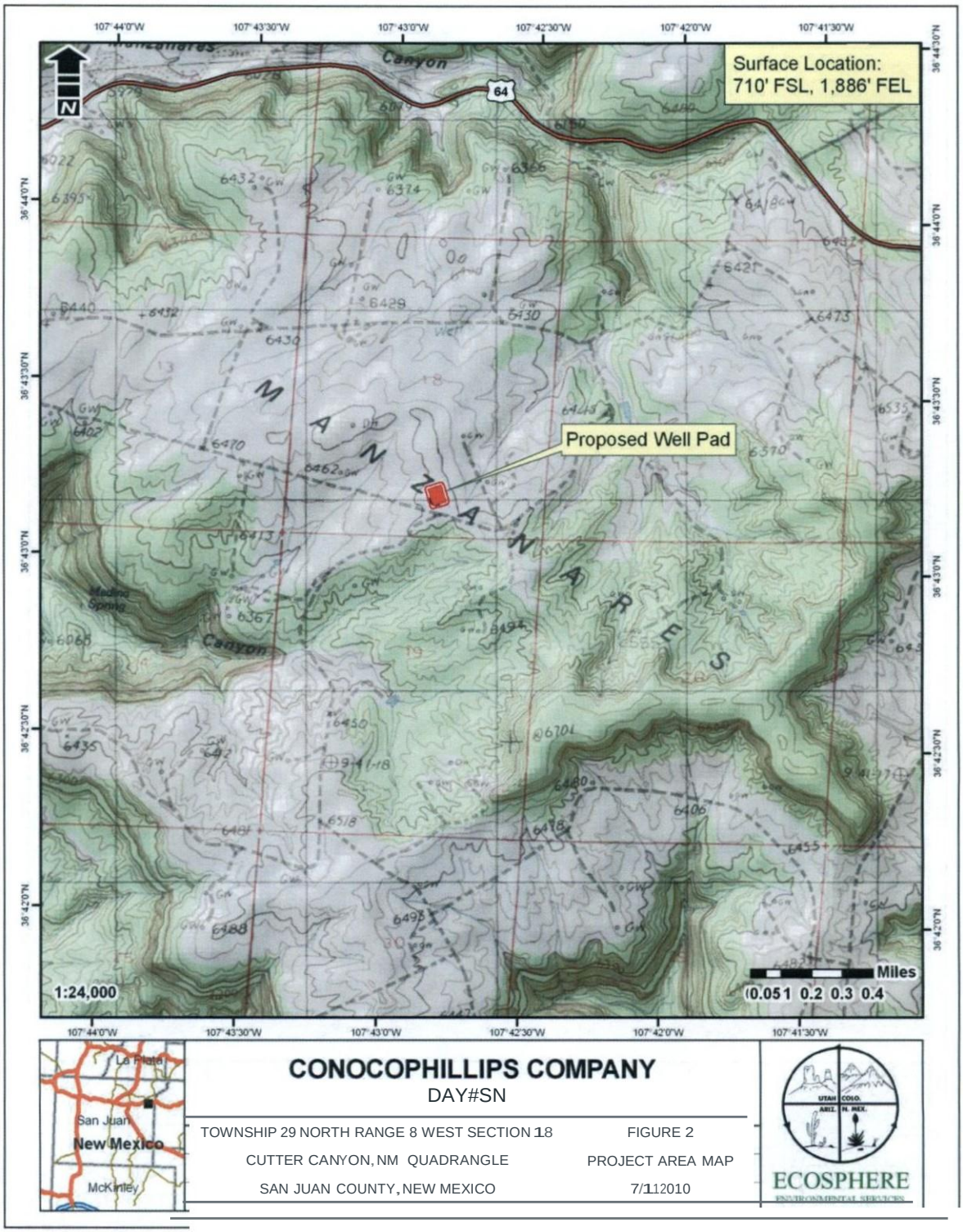
If the proposed natural gas well should prove productive, Enterprise would construct a 221-ft subsurface well tie pipeline within a 40-ft wide right-of-way (ROW) within the proposed well pad and parallel to the proposed access road for a maximum surface disturbance of 0.2 acre. The proposed pipeline would connect the proposed Day #5N to the existing Blanco Lateral A-13 pipeline. Approximately 50ft (0.05 acre) of the proposed well tie pipeline would be constructed on previous disturbance associated with the existing road and Blanco Lateral A-13 pipeline. The proposed access would be constructed within the proposed pipeline ROW, resulting in no additional surface disturbance. Total permitted surface disturbance for the proposed action would be 3.2 acres. Total new surface disturbance from the well pad, access road, and well tie pipeline would be 3.2 acres.

Construction activities associated with the proposed action would include drilling the proposed gas well and the installation of any surface equipment necessary for natural gas production. Construction of the proposed well would commence following the BLM/FFO approval of COPC's APD. In general, construction of the well pad project would follow the sequence listed below.

- Construction crews remove vegetation from the proposed natural gas well project site. Excavated materials from the cuts would be used on the fill portion of the location to level the pad. Included in the pad construction would be excavation of the reserve and blow pits. Cut material from the reserve and burn pits would be stockpiled on the location or used to construct the back walls of the burn pit. which is where a gas flare is burned during drilling to relieve wellbore pressure.
- Natural gas well drilling facility assembly would occur on the well pad after site clearing and leveling. Associated facilities and equipment utilized in this phase would include a drilling rig, generators, diesel engines, water tanks, mud tanks, safety stations, equipment and material storage units, blowout preventers, an accumulator station, and a gas buster. Water for the drilling would be obtained from a commercial source and trucked to the site.
- The drill cuttings, drill water, and completion fluids would be placed in a lined reserve pit. The reserve pit would be fenced on three sides away from the pad during drilling and the fourth side fenced as soon as the rig moves out. The reserve pit would be allowed to dry or the free fluids removed or trucked to an approved disposal facility or reused in drilling operations at another well site. In addition, any other production equipment or facility for which fluids are present shall be adequately fenced and properly maintained in order to safeguard both livestock and wildlife.
- Pipeline construction activities include: excavation of trenches, laying of pipe, covering of pipe and leveling.
- After the well is completed, a portion of the pad not required for production equipment and vehicular access, would be recontoured and seeded. Approximately 1 acre for production facilities on the well pad would remain in use for production equipment and vehicle access. These areas would not be reclaimed until final abandonment of the well. Production equipment that would remain onsite would include the wellhead, production unit separator, and a meter run. Ancillary equipment such as a Christmas tree, compressor, pump jack, storage tank(s), dehydrator, and separator could also be installed at the well pad site. Equipment such as compressors or pump jacks would be powered by gas compression engines. No electric power line construction is proposed.

For a detailed description of design features and construction practices associated with the proposed action, refer to the project plats provided in the APD in Appendix A. Implementation of committed mitigation measures contained in the Conditions of Approval (COAs) and ROW grant stipulations are incorporated and analyzed in this alternative. The COAs and pipeline ROW grant stipulations are provided in Appendix B.

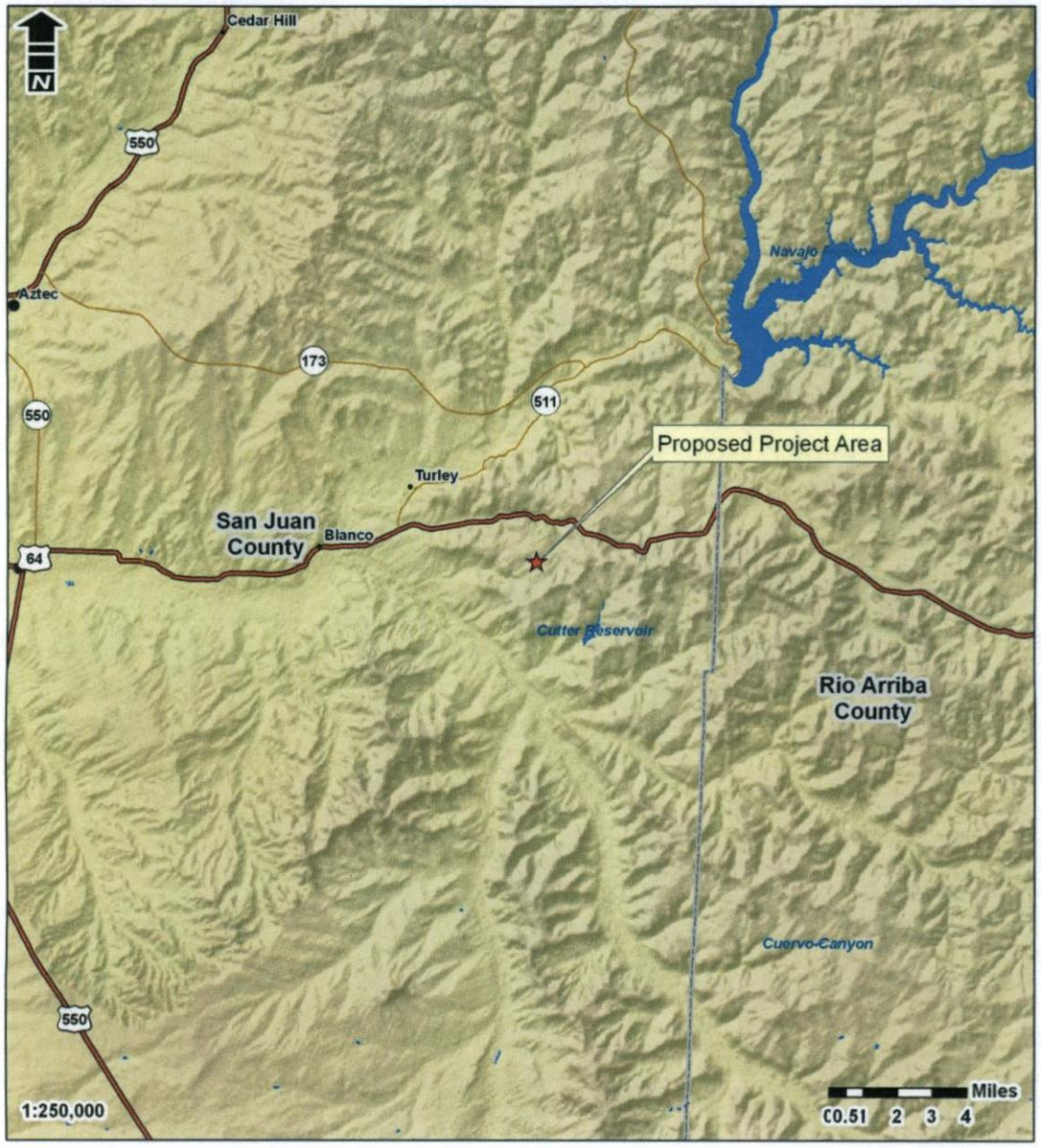
COPC will comply with all applicable federal, state and local laws and regulations and obtain the necessary permits for the installation of the well pad and pipeline. All areas of proposed surface disturbance were inspected in the field to ensure that potential impacts to natural

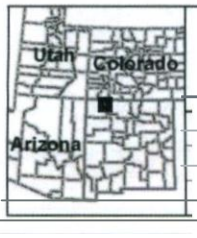

Surface Location:
710' FSL, 1,886' FEL
Proposed Well Pad
1:24,000
Miles
0.05 0.1 0.2 0.3 0.4
CONOCOPHILLIPS COMPANY
DAY#SN
TOWNSHIP 29 NORTH RANGE 8 WEST SECTION 18
CUTTER CANYON, NM QUADRANGLE
SAN JUAN COUNTY, NEW MEXICO
FIGURE 2
PROJECT AREA MAP
7/11/2010
San Juan
New Mexico
McKinley
ECOSPHERE

resources would be minimized through the implementation of mitigation measures. Section 4.0 of this EA describes these measures for all resources potentially impacted.

2.3 Alternatives Considered But Not Analyzed In Detail

The proposed location was selected to reach the Basin Dakota/Blanco Mesaverde formation within the specified drilling window and technological capabilities. No other alternatives were identified during the June 2010 onsite meeting that would fulfill the purpose and need of the proposed project. Figure 3 shows the proposed action on the 2005 Cutter Canyon, New Mexico digital photo orthoquad.



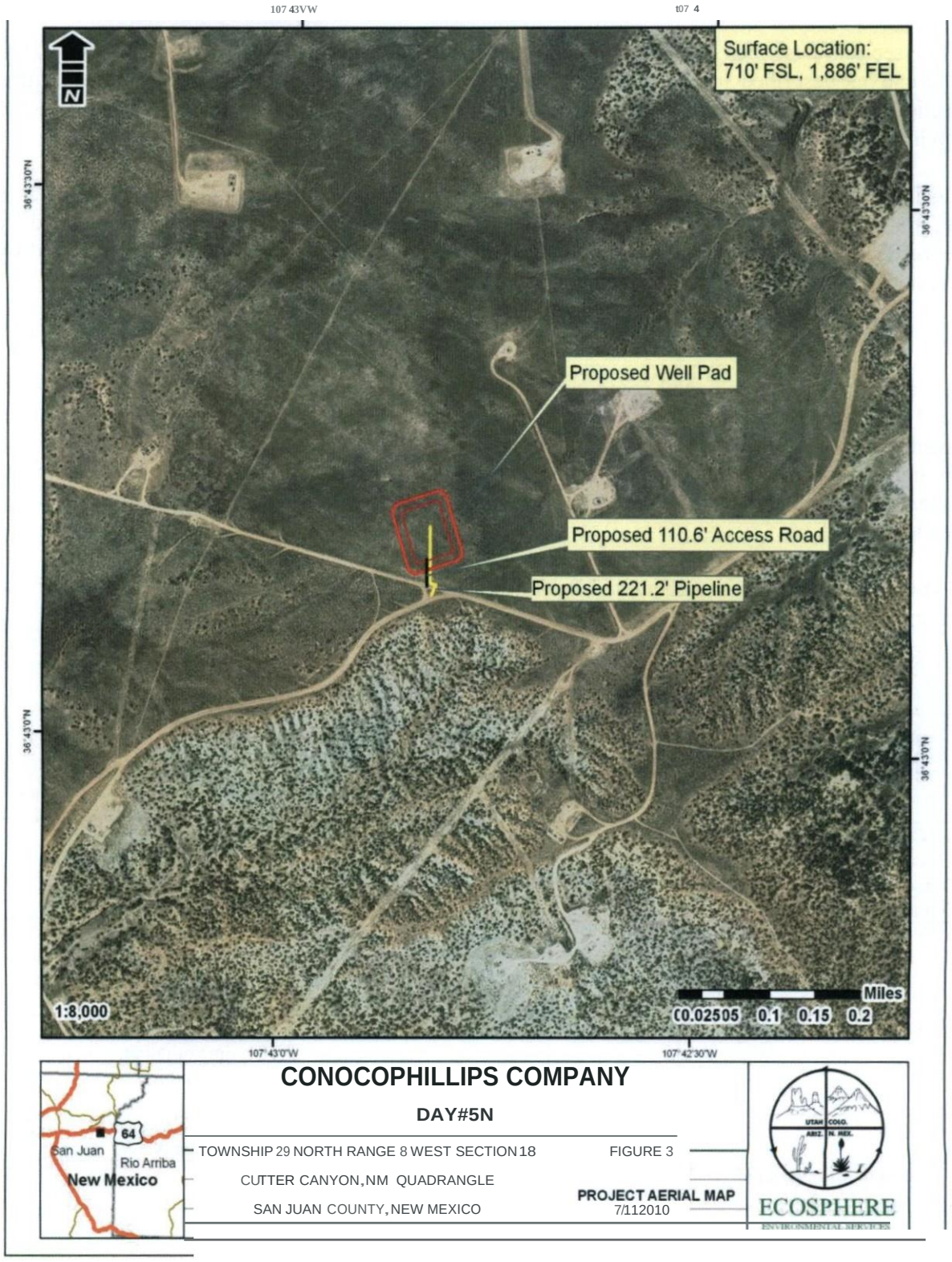


CONOCOPHILLIPS COMPANY

DAY#5N

TOWNSHIP 29 NORTH RANGE 8 WEST SECTION 18	FIGURE 1
NAVAJO RESERVOIR 1:100K TOPO	PROJECT VICINITY MAP
SAN JUAN COUNTY, NEW MEXICO	7/11/2010

ECOSPHERE


107 43VW
t07 4
Surface Location:
710' FSL, 1,886' FEL
N
36°43'30"N
Proposed Well Pad
Proposed 110.6' Access Road
Proposed 221.2' Pipeline
36°43'0"N
1:8,000
Miles
0.02505 0.1 0.15 0.2
107°43'0"W
107°42'30"W
CONOCOPHILLIPS COMPANY
DAY#5N
64
San Juan
Rio Arriba
New Mexico
TOWNSHIP 29 NORTH RANGE 8 WEST SECTION 18
CUTTER CANYON, NM QUADRANGLE
SAN JUAN COUNTY, NEW MEXICO
FIGURE 3
PROJECT AERIAL MAP
7/112010
UTAH COLO.
ARIZ. N. MEX.
ECOSPHERE
ENVIRONMENTAL SERVICES

3.0 DESCRIPTION OF AFFECTED ENVIRONMENT

This section describes the environment that would be affected by implementation of the alternatives described in Section 2.0. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Only the aspects of the affected environment that are potentially impacted are described.

Onsite meetings and field resource investigations of the proposed project area were conducted on June 30, 2010 by an Ecosphere Environmental Services (Ecosphere) biologist and attended by representatives from COPC and the BLM/FFO. Cultural resource surveys were conducted by Western Cultural Resource Management, Inc. (WCRM) on May 25 and July 14, 2010.

3.1 Critical Elements

Certain critical environmental components require analysis under BLM policy (see Appendix 5 of H-1790-1, NEPA Handbook). These requirements, listed in Table I, are specified by statute, regulations, or EO. Elements that do not exist in the project area or that do not have potential to be impacted are eliminated from further analysis as indicated in the table. Those elements potentially impacted by the proposed action or alternatives are described in the following sections.

Table 1. Affected Environment and Basis for Determination of No Further Analysis of Critical Elements.

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT				
Resources	**Located in Project Area**	**Not Located in Project Area**	**Further Analysis Presented in Text**	**Basis for Determination**
Air Quality	X		X	
Areas of Critical Environmental Concern (ACECsJ		X		
Cultural Resources	X		X	
Native American Religious Concerns		X	X	No traditional cultural properties known to occur in the proposed project area (Jim Copeland, pers. comm. 07/01/2010).
Environmental Justice	X		X	
Farmlands, Prime or Unique		X		No prime or unique farmlands located in project area or vicinity.
Floodplains		X		No floodplains located in project area or vicinity.
Threatened or Endangered Species		X	X	

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT				
Resources	**Located in Project Area**	**Not Located in Project Area**	**Further Analysis Presented in Text**	**Basis for Determination**
Wastes, Hazardous or Solid		X	X	Due to the handling and storage of minor volumes of fuels and lubricants during construction, and due to the presence of existing oil and gas facilities in the project area, further analysis is warranted.
Water Quality, Surface/Ground	X		X	
Wetlands/Riparian Zones		X		No wetlands/riparian areas are located in the project area.
Wild and Scenic Rivers		X		There are no wild and scenic rivers in the project area or vicinity.
Wilderness		X		There are no designated Wilderness Areas within a 25 mile radius of the proposed project.

3.1.1 Air Quality

The proposed well is located in San Juan County, New Mexico. Additional general information on air quality in the area is contained in Chapter 3 of the PRMP/FEIS (BLM 2003a). In addition to the air quality information in the PRMP cited above, new information about greenhouse gases (GHGs), and their effects on national and global climate conditions has emerged since this RMP 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.

The 2003 PRMP discussed ozone in the Baseline Air Quality and Impact Assessment sections. The National Ambient Air Quality Standard (NAAQS) at the time was 0.084 ppm. In March of 2008, the USEPA announced a new primary 8-hour standard of0.075 ppm.

Increased development in the Four Corners area including a proposed new coal fired power plant, increased oil and gas development, and population growth are all contributing to air quality concerns. Many residents are concerned with potential health impacts from other pollutants. An overall haze and plume of nitrogen oxides can often been seen in the skies, which impact visibility, and there are concerns for the ecosystem due to deposition of mercury and nitrogen.

In addition, the USEPA, on October 17, 2006, issued a final ruling on the lowering of the NAAQS for particulate matter ranging from 2.5 micron or smaller particle size. This ruling became effective on December 18, 2006, stating that the 24-hour standard for PM_{25}, was lowered to 35 ug/m^3 from the previous standard of 65 ug/m^3. This revised PM_{25} daily NAAQS was promulgated to better protect the public from short-term particle exposure.

This EA incorporates an analysis of the contributions of the proposed action to GHG emissions, and a general discussion of potential impacts to climate.

Air quality and climate are the components of air resources, which include applications, activities, and management of the air resource. Therefore, the BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as part of the planning and decision making process.

The USEPA has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states of which New Mexico is one. 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. Greenhouse gases and the potential effects of GHG emissions on climate are not regulated by the USEPA, however climate has the potential to influence renewable and non-renewable resource management.

3.1.1.1 Air Quality

The area of the proposed action is considered a Class 1l air quality area. A Class II area allows moderate amounts of air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment.

Air quality in the area near the proposed well is generally good and is not located in any of the areas designated by the USEPA as ·'non-attainment areas'' for any listed pollutants regulated by the Clean Air Act. During the summers of 2000 through 2002, ozone levels in San Juan County were approaching non-attainment. Additional modeling and monitoring was conducted by Alpine Geophysics, LLC and Environ International Corporations, Inc., in 2003 and 2004. Results of the modeling suggest the episodes recorded in 2000 through 2002 were attributable to regional transport and high natural biogenic source emissions. The model also predicted that the region will not violate the ozone NAAQS through 2007 and that the trends in the 8-hr ozone values in the region will be declining in the future. At the present time, the San Juan County is classified as in attainment with the revised federal ozone standard of 0.075 ppm. Rio Arriba County is unclassified because of there are no ozone monitors sited in Rio Arriba County.

Greenhouse gases, including CO_2 and methane CH_4, and the potential effects of GHG emissions on climate, are not regulated by the USEPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The USEPA's Inventory of US Greenhouse Gas Emissions and Sinks found that in 2007, total U.S. GHG emissions were over 7 billion metric tons and that total U.S. GHG emissions have increased by

17% from 1990 to 2007. Emissions increased from 2006 to 2007 by 1.4% (99.0 Tg C02 Eq.). The following factors were primary contributors to this increase: (I) cooler winter and warmer summer conditions in 2007 than in 2006 increased the demand for heating fuels and contributed to the increase in the demand for electricity, (2) increased consumption of fossil fuels to generate electricity and (3) a significant decrease (14.2%) in hydropower generation used to meet this demand (USEPA 2009).

The levels of these GHGs are expected to continue increasing. The rate of increase is expected to slow as greater awareness of the potential environmental and economic costs associated with increased levels of GHG's result in behavioral and industrial adaptations

3.1.1.2 Climate

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) predicted a warming of about 0.2°C per decade for the next two decades, and then a further warming of about 0.10C per decade. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: l) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses." It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed action and subsequent actions.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global averages by nearly 50% since the 1970's (Enquist and Gori 2008). Similar to trends in national data, increases in mean winter temperatures in the southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state.

3.1.2 Cultural Resources

The project is located within the archaeologically rich San Juan Basin of northwestern New Mexico. In general, the prehistory of the San Juan Basin can be divided into five major periods: PaleoIndian (ca. 10000 B.C. to 5500 B.C.), Archaic (ca. 5500 BC to A.D. 400), Basketmaker II-III and Pueblo I-IV periods (A.D. 1-1540), and the historic (A.D. 1540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. A detailed description of these various periods and select phases within each period is provided in the Farmington PRMP/FEIS (BLM 2003a).

The proposed Day #5N gas well would be located the southern boundary of the Upper San Juan watershed. Based on the Farmington PRMP/FEIS (BLM 2003a), a total of 3,009 sites representing PaleoIndian, Archaic Period, Basketmaker II, Basketmaker Ill, Unknown Anasazi, Pueblo I, Pueblo II, Pueblo III, Pueblo IV, Unknown Navajo, Dinetah/Gobernador Phase, Cabezon Phase, Reservation Phase, Apache, Pueblo, Hispanic, and Euro-Anglo temporal/cultural components have been documented within the Upper San Juan watershed. Sites density is high with any apparent gaps most likely a factor of inventory lacking, not a lack of sites. These categories of sites defined based on temporal/cultural affiliation and their frequency in each watershed are listed in Table 2. Lacking in the watershed are sites attributed to Ute occupations.

Table 2. Frequency of components by cultural affiliation in the Upper San Juan watershed. Cultural affiliations with the highest frequency of occurrence in the watershed are indicated in bold (general unknown not included).

Cultural Affiliation	Upper San Juan Watershed	Frequency of Occurrence(%) in Watershed
PaleoIndian	8	0.27
Archaic Period	236	7.84
Basketmaker II	28	0.93
Basketmaker Ill	90	2.99
Unknown Anasazi	48	1.60
Pueblo I	355	11.80
Pueblo II	185	6.15
Pueblo Ill	132	4.39
Pueblo IV	4	0.13
Unknown Navajo	105	3.49
Dinetah/Gobernador	240	7.98
Cabezon	18	0.60
Reservation	431	14.32
Apache	84	2.79
Ute	0	0
Pueblo	1	0.03
Hispanic	18	0.60
Euro-Anglo	78	2.59
General Unknown	948	31.51
Totals	3,009	100

WCRM completed a cultural resources survey of the proposed project under the New Mexico Cultural Resource Permit numbers 25-2920-09-JJ and 25-2920-09-KK on May 25 and July 14, 2010. Prior to field surveys of the project area, the investigation included a literature review of known resources with the proposed project area. WCRM conducted the literature review using available GIS data from the Laboratory of Anthropology Archaeological Record Management Section (ARMS) and the BLM/FFO. WRCM also consulted Van Valkenburgh (1974) to locate places sacred to the Navajo in the vicinity of the proposed project area. For the field surveys, WCRM surveyed the proposed well pad, construction zone and the proposed pipeline for a total of 7.88 acres. No sites in the vicinity of the proposed project area are listed on the National Register of Historic Places or State Register of Cultural Properties. The cultural resources report has been submitted to the BLM under separate cover [WCRM(F)932].

3.1.3 Native American Religious Concerns

There are several pieces of legislation or executive orders that are considered in an evaluation of Native American Religious Concerns (i.e., American Indian Religious Freedom Act [AIRFA] of 1978, Executive Order 13007, The Native American Graves Protection and Repatriation Act [NAGPRA] of 1990, and the Archaeological Resources Protection Act [ARPA] of 1979).

Traditional Cultural Properties (TCPs) are a separate class of cultural resources which may occur in the EA study area, may or may not coincide with archaeological sites and artifact loci, and may fall under the purview of one or more of the cited legislation. The National Park Service has defined TCPs as follows:

> A traditional cultural property can be defined generally as one (a property) that is eligible for the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (National Register Bulletin 38).

For the proposed action, identification efforts for Native American Religious Concerns were limited to reviewing existing published and unpublished literature and discussions with Jim Copeland, an archaeologist with the BLM/FFO. There are no known TCPs within the action area (Jim Copeland, pers. comm. July 1, 2010).

3.1.4 Environmental Justice

Executive Order 12898 requires federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety effects on minority and low income populations. Minorities comprise a large proportion of the population residing inside the boundaries of the BLM/FFO (see pages 3-106 to 3-107 of the PRMP/FEIS for more details on ethnicity and poverty rates).

3.1.5 USFWS Threatened and Endangered Species

Under section 7 of the Endangered Species Act (ESA) of 1973 (as amended), the BLM is required to consult with the USFWS on any proposed action which may affect federally listed threatened or endangered species or species proposed for listing. The Biological Survey Report (BSR) completed by Ecosphere addresses the potential for federally listed and other special status species to occur in the project area (see Appendix C). Table 3 summarizes the potential for federally listed species to occur in the project area.

Table 3. Habitat Descriptions and Presence of USFWS listed Threatened (T), Endangered (E), or Candidate (C) species with potential to occur in San Juan County, New Mexico.

SPECIES	CONSERVATION STATUS	HABITAT ASSOCIATIONS	PRESENCE*
MAMMALS			
Black-footed ferret *(Mustela nigripes)*	E	Open grasslands with year-round prairie dog colonies.	NP
BIRDS			
South western willow flycatcher *(Empidonax lraillii extimus)*	E	Breeds in dense, shrubby riparian habitats, usually in close proximity to surface water or saturated soil.	p
Mexican spotted owl *(Sirix occidentalis Iucida)*	T	Nests in caves, cliffs, or trees in steep-walled canyons of mixed conifer forests.	p
Yellow-billed cuckoo *(Coccy=us americanus ssp. occidentalis)*	C	Nests in cottonwood/willow riparian habitat with dense understory along rivers; rare in the San Juan River valley.	p
Mountain plover *(Charadrius montanus)*	p	Breeds tn extremely dry, level shrublands, shortgrass prairie, barren agricultural fields, and other sparsely vegetated areas.	p
FISH			
Colorado pikeminnow (*Ptychocheilus lucius)*	E	Large rivers with strong currents, deep pools, and quiet backwaters.	p
Razorback sucker *(Xyrauchen texanus)*	E	Medium to large rivers with silty to rocky substrates. Prefers strong currents and deep pools.	p
PLANTS			
Knowlton's cactus *(Pediocactus knowltonii)*	E	Alluvial deposits that form rolling, gravelly hills in pinon-juniper and sagebrush communities (6,200-6,400 ft).	NP

"

SPECIES	CONSERVATION STATUS	HABITAT ASSOCIATIONS	PRESENCE*
Mancos milkvetch *(Astragalus humillimus)*	E	Cracks of Point Lookout Sandstone of the Mesa Verde series (5,000-6,000 ft).	p
Mesa Verde cactus *(Sclerocactus mesae-verdae)*	T	Highly alkaline soils in sparse shale or adobe clay badlands of the Mancos and Fruitland formations (4,000-5,550 ft).	p

K- Known, documented observation w1thm proJect area, S – Suitable hab1tat and specles suspected to occur Wlthm the proJeCt area; NS – Habitat suitable but species is not suspected to occur within the project area; 'P - Habitat not present and species unlikely to occur within the project area.

No federally listed species with the potential to occur in San Juan County, or potential habitats of federally listed species, were observed within the proposed project area.

3.1.6 Wastes, Haza rdous or Solid

The Resource Conservation and Recovery Act (RCRA) passed in 1976, establishes a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. The USEPA regulations define solid wastes as any "discarded materials" subject to a number of exclusions. A "hazardous waste" is a solid waste that (I) is listed by the USEPA as a hazardous waste, (2) exhibits any of the characteristics of hazardous wastes (ignitability, corrosivity, reactivity, or toxicity), or (3) is a mixture of solid and hazardous waste. A 1980 amendment to RCRA conditionally exempted the following from regulation as hazardous wastes: "drilling fluids, production waters, and other wastes associated with the exploration, development, or production of crude oil or CBM gas." On July 6, 1988, USEPA determined that oil and gas exploration, development and production (EDP) 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 USEPA. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA), passed in 1980, deals with the release (spillage, leaking, dumping, accumulation, etc.) or threat of a release of hazardous substances into the environment. 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 Oil Conservation Division (OCD) administers hazardous waste regulations for oil and gas activities in New Mexico.

3.1.7 Water Quality, Su rface and Groundwater

The project area is located in the Upper Colorado River Hydrologic Region and is part of the San Juan River sub-region. The project area is located within the 657,318-acre Upper San Juan and 163,658-acre Blanco watersheds of the San Juan River sub-region. As of 2003 (BLM *2003a)*, the Upper San Juan and Blanco watersheds contained 3,853 and 1,041 wells and 3.5 and 2.1

miles per square mile of roads, respectively. Approximately 3.8% and 3.1% of these watersheds (Upper San Juan and Blanco, respectively) have surface disturbance due to well pads and access roads. The nearest perennial water source to the proposed well pad is the San Juan River, located approximately 3.3 miles northwest of the proposed project area. The proposed project is located 200ft north of Medina Canyon. Medina Canyon flows into Cafion Largo 3.8 linear miles west of the proposed project area. Both canyons are ephemeral tributaries of the San Juan River.

No defined drainages are located within the project area. Surface water runoff from project area would flow southwest into the main draw of Medina Canyon. There are no perennial water resources, wetlands, springs, or seeps within the project area.

The primary aquifers in the BLM/FFO area are the sandstone based Uinta-Animas and the Mesaverde. Groundwater is readily available in most of the BLM/FFO area and is of fair to poor quality. A search of the New Mexico State Engineers Office - Water Administration and Technical Engineering Resource System (WATERS) database for the proposed project area and vicinity (1-mile radius) was performed. The database has a record of two water wells in the same location 0.65 mile northwest from the proposed project area. Both wells were drilled by McConnell. The first well, drilled on August 28, 1952, was plugged on February 7, 1985. The second well, drilled on November 23, 1952, was drilled to 591 ft and has a water depth of 70ft.

3.2 Non-Critical Elements

Non-critical elements include resources that may be affected by the proposed action or alternatives, but are not necessarily required to be analyzed by statute, regulation, or EO. Table 4 lists non-critical elements that are either eliminated from further analysis in the table or are discussed further in this EA as they pertain to management objectives outlined in the BLM/FFO PRMP/FEIS (BLM *2003a).*

Table 4. Affected Environment and Basis for Determination of No Further Analysis of Non-Critical Elements.

NON-CRITICAL ELEMENTS				
Resources	Located in Project Area	Not Located in Project Area	Further Analysis Presented in Text	Basis for Determination
Topography/Surface Geology	X		X	
Mineral Resources	X		X	
Paleontology	X		X	The project area is located with a PFYC Class 5 designated area.
Soils	X		X	
Vegetation, Forestry	X		X	
Invasive, Non-native Species		X	X	
Livestock Grazing		X	X	
Special Status Species	X		X	
Wildlife	X		X	
Migratory Birds	X		X	

Wild Horses and Burros		X		There are no wild horse or burro populations in or near the project area.
Recreation	X		X	
Visual Resources	X		X	
Public Health and Safety	X		X	

3.2.1 General Topography/Surface Geology

The proposed project area would be located at an elevation of 6,513 ft on Manzanares Mesa. The region is characterized by broad mesas interspersed with narrow canyons and broad open terrain surrounded by eroded terrace mesas and escarpments of the Colorado Plateau. The general topography in the surrounding area is characterized by gently rolling terrain that slopes into Medina Canyon 0.25 mile to the southwest and Manzanares Canyon 1-mile to the north. Southern slopes of 20% drop into Medina Canyon 200 ft below the proposed project area. Steep, terraced cliffs associated with the canyons occur within 2 miles of the proposed project area. Existing oil and gas roads cross Manzanares Mesa near the proposed project area. The proposed well pad would be located on undisturbed terrain. The topograph y in the proposed well pad includes l0% north aspect slopes in the northern portion of the well pad, 8% west aspect slopes from the well head to the northwest corner, and 4% southwest aspect slopes from the well head to the southwest comer.

Surface geology of the proposed project area is derived from the San Jose Formation (Manley et al. 1987). No rock outcrops occur within the proposed project area. The most prominent topographical features in the project area vicinity are the eroded terrace canyons walls associated with Manzanares Canyon and Medina Canyon.

3.2.2 Mineral Resources

Natural gas production in the San Juan basin is the highest in the state of New Mexico, with approximately 650 to 700 million thousand cubic feet (Met) annually. The proposed natural gas well would produce gas from a valid existing federal lease for the minerals associated with the proposed development formations. The proposed well tie pipeline would transport natural gas from the proposed gas well into the regional transmission system.

There are no coal mines or salable mineral extraction projects operat ing in the vicinity of the proposed project.

3.2.3 Paleontology Resources

The BLM uses the Potential Fossil Yield Classificati on (PFYC) system to identify areas with a high potential to produce significant fossil resources (IM 2008-009). This system has ranked all lands within the FFO management area as a Class 5 designation. Class 5 designations are described as being Very High Potential paleontological resource areas, thus requiring an assessment at the project level (IM 2008-0 II). The proposed project area is located within the paleontological rich area of the San Juan Basin of northwestern New Mexico.

3.2.4 Soils

The Defiance Uplift and Chuska Mountains to the west, San Juan Dome to the north, Chaco Slope and Zuni Uplift to the south and the Nacimiento Uplift to the east, border the San Juan Basin. In total, the San Juan Basin covers a surface of approximately 4,600 square miles. The soils in the San Juan Basin were formed primarily from two kinds of parent material: alluvial sediment and sedimentary rock. The alluvial sediment is material that was deposited in river valleys and on mesas, plateaus, and ancient river terraces. The material has been mixed and sorted in transport and has a wide range of mineralogy and particle size. Sedimentary parent material consists mainly of sandstone and shale bedrock. These shale and resistant sandstone beds form prominent structural benches, buttes, and mesas bounded by cliffs.

The primary soil mapping unit found at the proposed project area consists of Penistaja Loam, gently sloping (Keetch 1980). Soils in the proposed project area are classified as sandy clay loam. Cryptobiotic soil crusts were observed at the project site at 10% coverage.

The Penistaja loam, gently sloping soil mapping unit occurs on mesas and plateaus with slopes ranging from 0 to 5%. The unit is comprised of alluvium and eolian material derived from sandstone and shale. Included in this unit are small areas of Travessilla and Weska soils on hills, breaks and mesas; Twick soils on hills; and Buckle soils on fans. Permeability is moderate with high available water capacity. Effective rooting depth is 60 inches or more. Runoff is medium with the potential for water erosion moderate. The hazard of soil blowing is severe. The unit is used for livestock grazing, recreation, and wildlife habitat. Risk of corrosion for uncoated steel pipe is rated high. The potential as habitat for open land wildlife and rangeland wildlife is fair. The road rating for Penistaja soils is moderate due to the shrink/swell potential and low strength (Keetch 1980).

3.2.5 Vegetation, Forestry

The entire proposed project area is located on undisturbed habitat. The plant communities in the proposed project and surrounding area consist of desert scrub and scattered pinon-juniper woodlands. Vegetation cover in the proposed project area is between 50 to 80%. Approximately 50% of the proposed project area has been treated to facilitate better grazing opportunities for livestock and is dominated by Russian thistle *(Sa/sola tragus)* and cheatgrass *(Bromus tectorum)*. Mature, 3 to 4-ft tall big sagebrush *(Artemisia tridentata)* dominate the untreated areas of the proposed project area. Six small stature trees less than 10 ft tall, two Utah junipers *(Juniperus osteosperma)* and four pinon pines *(Pinus edulis)*, are located in the construction zone on the north side of the well pad. A dense, mature pinon- juniper woodland associated with Medina Canyon occurs 200 ft south of the proposed project area. A complete list of plants found during the field survey is included in the BSR in Appendix C.

3.2.6 Invasive, Non-native Species

The BLM/FFO maintains a list of invasive and non-native plant species of concern (BLM 2003a). No species listed by the BLM were observed in the project area. A complete list of plants found during the field survey is included in the BSR in Appendix C.

3.2.7 Special Status Species

In accordance with BLM Manual 6840, the BLM manages certain sensitive species 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. Table 5 lists the special status species and their potential to occur in the proposed project area. The BSR in Appendix C provides the basis for the findings listed in the table.

The desert scrub communities and pmon- juniper and the sandstone cliff formations with potential raptor habitat in the vicinity of the proposed project area provide excellent foraging habitat for golden eagles *(Haliaeetus leucocephalus)* and prairie falcons *(Falco mexicanus)*. According to the BLM/FFO, suitable nesting habitat for peregrine falcons *(Falco peregrinus anatum)*, golden eagles and prairie falcons surrounds the proposed project area to the north, east, south and west with the closest at 0.75 miles south in the cliffs associated with Medina Canyon. The vicinity (S-mile radius) contains two peregrine falcon nests and six golden eagle nests with the closest at 1.8 miles southwest. Twenty-seven additional raptor nests occur within I0 miles of the proposed project area (BLM 2009, unpublished data). No raptors or raptor nests were observed in the action area. . No signs of any special status species were observed during the field investigation conducted on June 30, 20I0.

Table 5 Habitat descnpt10ns and presence ofBLM/FFO special status species.

SPECIES	HABITAT ASSOCIATIONS	PRESENCE
Golden eagle *(Aquila chrysaetos)*	In the west, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	S
Burrowing owl *(Athene cunicularia)*	Rarely dig their own burrows and are typically associated with prairie dog colonies.	NP
Ferruginous hawk *(Buteo regalis)*	Flat or rolling terrain in grasslands, shrub-steppes, and deserts; may occur in the periphery of pinon-juniper or other forests. Badlands. Prefers elevated nest sites (e.g., buttes, utility poles, trees) but also nests on the ground.	NP
Mountain plover *(Charadrius montanus)*	Breeds in flat, open grasslands; often associated with prairie dog towns and intensive grazing.	NP
Yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	Breeds in riparian woodlands with dense, understory vegetation.	NP
Prairie falcon *(Falco mexicanus)*	Found in arid, open grasslands and shrub-steppe habitats. Prairie falcons require cliffs for nesting.	S
American peregrine falcon *(Falco peregrinus anatum)*	Rugged terrain with rocky cliffs and canyons (30-1,000+ ft high), adjacent to rivers, lakes, or streams. Urban areas with towers and buildings are also inhabited.	S
Bald eagle *(Ha/iaeetus leucocephalus)*	ests in forested areas adjacent to large bodies of water.	NP
Aztec gilia *(Aliciella formosa)*	Salt desert scrub communities in soils of the acimiento Formation (5,000-6,000 ft).	NS
Brack's hardwall cactus *(Sclerocactus cloveriae ssp. brackii)*	Sandy clay of the Nacimiento Formation in sparse shadscale scrub (5,000-6,000 ft).	S

K - Known, documented observation w1thm proJect area; S - Hab1tat suitable and species suspected to occur w1thm the project area; NS - Habitat suitable but species is not suspected to occur within the project area; NP - Habitat not present and species unlikely to occur within the project area.

3.2.8 Wildlife

Big-game, small and medium-sized mammals commonly found in scrubland and pinon-juniper woodland communities may include mule deer *(Odocoileus hemionus)*, elk *(Cervus elaphus)*, mountain lion *(Puma concolor)*, black-tailed jackrabbit *(Lepus californicus)*, desert cottontail *(Sylvilagus audubonii)*, ground squirrel *(Spermophilus variegates)*, deer mouse *(Peromyscus maniculatus)*, white-tailed antelope squirrel *(Ammospermophilus leucurus)*, rock squirrel *(Cite/Ius variegatus)*, wood rat *(Neotoma* spp.), coyote *(Canis latrans)*, badger *(Taxidea taxus)*, Ord's kangaroo rat *(Dipodomys ordii)* and pocket gopher *(Thomomys* spp.).

During the June 30, 2010 biological survey, signs of black-tailed jackrabbit, desert cottontail, and elk were observed in the proposed project area. A list of wildlife species observed within the proposed project area is provided in the project BSR in Appendix C.

"

3.2.9 Migratory Birds

Under the Migratory Bird Treaty Act (MBTA) (16 USC §703-712) and EO 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds", federal agencies are required to consider management impacts to migratory nongame birds. While all migratory songbirds are protected by law, certain species have been determined to be at greater risk than others. More than 350 avian species occur in San Juan County and the surrounding area administered by the BLM/FFO. A total of 136 species have been confirmed as breeding in San Juan County with likely additional species if one considers the adjacent counties within the FFO area. Data collected through breeding bird surveys coordinated by the USFWS as well as other private sector efforts have provided the basis for the New Mexico Partners in Flight (NMPIF) organization to develop bird "Watch Lists" (NMPIF 2007) and the USFWS's "Birds of Conservation Concern List" (USFWS 2008). The NMPIF organization has identified priority species of birds for the state of New Mexico by habitat type. The FFO area lies within the Colorado Plateau physiographic region as identified by the NMPIF. The proposed project area contains one of the habitat types addressed in these documents: Great Basin desert shrub (sage/grass. Some of the birds listed as "Highest Priority" by the PIF group as well as USFWS "Birds of Conservation Concern" includes the ferruginous hawk *(Buteo regalis)*, gray vireo *(Vireo vicinior)*, pinon jay *(Gymnorhinus cyanocephalus)*, and Bendire's thrasher *(Toxostoma bendirei)*.

3.2.10 Grazing

The FFO/BLM manages 167 grazing allotments with 351 grazing authorizations that permit cattle, sheep and horse grazing within the resource area. Of the 351 grazing authorizations, 317 are permitted under Section 3 of the Taylor Grazing Act. Of the 167 grazing allotments, there are four authorizations issued under Section 15 of the Taylor Grazing Act to the Navajo Tribe that authorizes grazing on 35 allotments. An additional 30 Section 15 authorizations permit grazing on 30 allotments in the Lindrith, NM area.

The proposed project is located within BLM grazing allotment No. 5091. The grazing permittee for this allotment is William L. Nobles Estate. This allotment encompasses 4,901 acres and is permitted for 50 cattle from March 1 to April 30 and 50 cattle from November 1 to February 28. Total animal unit months (AUMs) for each grazing period are 100 and 197, respectively.

3.2.11 Recreation

Recreation in the proposed project area consists of dispersed activities such as hiking, mountain biking, horseback riding, and hunting. There are no designated special recreation areas near the proposed action.

3.2.12 Visual Resources

The project area is within the San Juan Basin, an area visually characterized by steep colorful escarpments, mesas, plains, dunes, and sheer-walled canyons. The entire project area is located in previously undisturbed terrain. The area surrounding the proposed project area is characterized by Great Basin desert scrubland and pinon-juniper woodland.

The BLM has developed a Visual Resource Management (VRM) classification system designed to maintain or enhance visual qualities and describe the different degrees of modification to the landscape (BLM 2003a). Modifications to the visual resource must follow the guidelines for the types of change suitable for each class. The project area is described as having a Class IV VRM classification. The objective of this class is to provide for management activities that require major modifications to the existing characteristic landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

3.2.13 **Public Health and** Safety

Public risk associated with natural gas development includes increased traffic on public roads, wildfire, pipeline leakage, rupture, fire and explosion. Additional public health and safety risks include spills of wastes, chemicals, or hazardous materials. Roads in the area are generally unimproved dirt surface and are used to access natural gas facilities. These roads may become hazardous or impassable during periods of inclement weather.

4.0 ENVIRONMENTAL CONSEQUENCES

Environmental resources can be affected in many ways during implementation of the proposed action. The effect, or impact, is defined as any change or alteration in the pre-existing condition of the environment produced by the proposed action, either directly or indirectly. This chapter analyzes the environmental consequences of the proposed action.

Impacts can be either long-term (permanent, residual) or short-term (incidental, temporary). Short-term impacts affect the environment for only a limited time period and the environment usually reverts rapidly to the pre-construction condition. Short-term impacts are often disruptive and obvious. Long-term impacts are substantial and permanent alterations to the pre-project environment. The BLM defines long-term impacts as those impacts whose results endure more than five years. Impacts may be irreversible or residual and affected resources irretrievable.

For the purpose of this EA, potential impacts have been divided into three categories:

> **High-** as defined in CEQ guidelines (40 CFR 1500-1508), impacts which are substantial in severity and therefore should receive the greatest attention in decision making.
>
> **Moderate** - impacts which cause a degree of change that is easy to detect, but do not meet the criteria for significant impacts.
>
> **Low** - impacts which cannot be easily detected and cause little change in the existing environment.

No Action Alternative

Under the no action alternative, the proposed natural gas well pad and access road would not be constructed nor the well drilled. There would be no new impacts from oil and gas production to resources in the project area. The no action alternative would result in the continuation of the current land and resource uses in the project area. This alternative will not be evaluated further in Chapter 4.

Action Alternative- Proposed Action

Under the proposed action, the Day #5N well pad, access road, and pipeline would be vertically drilled as proposed, with mitigation measures to reduce potential impact to environmental resources. Total new surface disturbance associated with the well pad would be 3.2 acres. Total new surface disturbance associated with the access road would be 3.2 acres. Approximately 1.0 acre would be subject to long-term disturbance associated with the natural gas well pad and access. The potential environmental consequences and proposed mitigation measures for this alternative are described for both critical and non-critical elements in the following sections.

4.1 Air Resources

4.1.1 Direct and Indirect Effects

Air Quality

Air quality would temporary be directly impacted with pollution from exhaust em1ss1ons, chemical odors, and dust that wou ld be caused by the motorized equipment used to construct the access road, well pad, and by the drilling rig that will be used to drill the well. Dust dissemination would discontinue upon completion of the construction phase of the access road and well pad. Air pollution from the motorized equipment would discontinue at the completion of the drilling phase of the operations. The winds that frequent the northwestern part of New Mexico generally disperse the odors and emissions. The impacts to air quality would be greatly reduced as the construction and drilling phases are completed. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from recreational use, and dust from use of roads for vehicular traffic.

Over the last I0 years, the leasing of federal oil and gas mineral estate in FFO has resulted in an average total of approximately 450 to 500 wells drilled on federal leases annually. These wells would contribute an incremental increase to the total emissions (including GHG's) from oil and gas activities in New Mexico.

Potential impacts of development could include increased air borne soil particles blown from new well pads or roads, exhaust emissions from drilling equipment, compressors, vehicles, and dehydration and separati on facilities, as well as potential releases of GHG, NOx and VOCs during drilling or production activities. The amount of increased emissions cannot be quantified at this time since it is unknown how many wells might be drilled, the types of equipment needed if a well were to be completed successfully (e.g. compressor, separator, dehydrator), or what technologies may be employed by a given company for drilling any new wells. The degree of impact will also vary according to the characteristics of the geologic formations from which production occurs.

The reasonable and foreseeable development scenario developed for the Farmington RMP demonstrated 522 wells would be drilled annually for federal minera ls. Current APD permitting trends within the field office confirm that these assumptions are still accurate. This level of exploration and production wou ld contribute a small incremental increase in overall hydrocarbon emissions, including GHGs, NOx, and VOCs released into the planet's atmosphere. When compared to total national or global emissions, the amount released as a result of potential production from the proposed well wou ld not have a measurable effect on cl imate change due to uncertainty and incomplete and unavailable information; therefore is not possible to determine the effects on climate change on a regional, national, or global scale.

Consumption of oil and gas developed from the proposed well is expected to produce GHGs, NOx and VOCs. Consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availabi lity of other energy sources, econom ics, demography, and weather or climate. Regional and global transportation, metropolitan traffic, fires (including wildfires, controlled burns and use of domestic fire places), and power plant emissions from the

west are all parts of the equation. Regional air quality modeling conducted for the Northern San Juan Basin Coal Bed Methane FEIS Project in August 2006, determined that potential cumulative visibility impacts to Federal PSD Class I Areas (Mesa Verde National Park and the Weminuche Wilderness) could occur at some unspecified time in the future

The NAAQS are set for the most common and widespread pollutants. The standards are concentrations of air pollution above which the USEPA has determined that serious health and welfare consequences could occur. If the concentrations are below the NAAQS, there are no expected adverse effects to humans and the environment.

Climate

The assessment of GHG emissions and climate change is in its formative phase. It is currently not feasible to know with certainty the net impacts from the proposed action on climate. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. When further information on the impacts to climate change is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate.

4.1.2 Mitigation Measures

The FFO has been a participant of the Four Corners Air Quality Task Force (FCAQTF) since its inception back in 2002 when it was known as the Four Corners Ozone Task Force. Because of the unanswered questions raised by these modeling efforts, the FCAQTF has continued to look at air quality issues in the Four Corners region. The FCAQTF is comprised of a broad base of representatives including federal, state, Indian, and local governments, as well as industry, interest groups, and concerned community members. The FCAQTF has several working groups, which worked on the development of a mitigation options report (completed December 2007), to serve as a resource and guide to the regulatory agencies. The responsible agencies may use the report as the basis for developing air quality management plans for the region. This may include developing new and revising existing regulations, supporting new legislation, developing new outreach and information programs, and developing and/or expanding voluntary programs for emission reductions.

Additional air quality modeling conducted since completion of the 2003 PRMP/FEJS and provisions in the ROD for the PRMP/FEIS provide for applications of additional emission controls if requested by the NMAQB. Based on this modeling, the NMAQB issued an interim directive that all newly issued APDs limit compressor emissions to no more than 2 grams per horsepower hour of N_2O for engines of 300 horsepower or less. The FFO has complied with this directive through a COA which has been in effect since August 1, 2005. To date, NMAQB has made no other such requests.

Currently, development on federal minerals in New Mexico's San Juan Basin is at a lower level than forecast in the Reasonable Foreseeable Development (RFD) Scenario prepared in 2001 for the FFO PRMP/FEIS. The impacts forecast by the RFD are still valid. At the time the 2003 PRMP FEIS was written, ozone readings did not represent a violation of the NAAQS for this

pollutant. The New Mexico Environment Department Air Quality Bureau has determined that the 2007 to 2009 ozone design value for San Juan County is 0.070 ppm. The design value for the county must be greater than the revised 8-hour ozone standard of 0.075 ppm for a nonattainment designation.

The USEPA's inventory data describes ·'Natural Gas Systems" and "·Petroleum Systems" as the two major categories of total US sources of GHG gas emissions. The inventory identifies the contributions of natural gas and petroleum systems to total CO_2 and CH_4 emissions (natural gas and petroleum systems do not produce noteworthy amounts of any of the other greenhouse gases). Within the larger category of ..Natural Gas Systems", the USEPA identifies emissions occurring during distinct stages of operation, including field production, processing, transmission and storage, and distribution. "Petroleum Systems" subactivities include production field operations, crude oil transportation and crude oil refining. Within the two categories, the BLM has authority to regulate only those field production operations that are related to oil and gas measurement, and prevention of waste (via leaks, spills and unauthorized flaring and venting).

The BLM's regulatory jurisdiction over field production operations has resulted in the development of "Best Management Practices" (BMPs) designed to reduce impacts to air quality by reducing all emissions from field production and operations. Typical measures may include: flare hydrocarbon and gases at high temperatures in order to reduce emissions of incomplete combustion; require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; placement of compressors engines 300 horsepower or less must have NOx emissions limited to 2-grams per horsepower hour; revegetate areas of the pad not required for production facilities to reduce the amount of dust from the pads; and water dirt roads during periods of high use in order to reduce fugitive dust emission. The significant threshold for particulate matter of 35 ug/m^3 daily $PM_{2.5}$ NAAQS is not expected to be exceeded under the proposed action alternative.

The USEPA data show that improved practices and technology and changing economics have reduced emissions from oil and gas exploration and development (Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006). One of the factors in this improvement is the adoption by industry of the BMPs proposed by the USEPA's Natural Gas Energy Star program. The Farmington Field Office will work with industry and NMAQB to help facilitate the use of the relevant BMPs for operations proposed on federal mineral leases where such mitigation is consistent with agency policy.

4.2 Cultural Resources

No cultural material was encountered during the May and July 2010 cultural resource surveys. The cultural resources report has been submitted to the BLM under separate report cover WCRM(F)932.

4.2.1 Direct and Indirect Effects

The proposed action would have no known direct impacts to cultural resources. A potential indirect effect from the proposed action is the increase in human activity in the area with the increased possibility of unauthorized removal or other alteration to cultural resources in the area.

A cultural resources determination of effect for the proposed action would be issued by BLM/FFO archaeologists. This determination would be included in the BLM/FFO cultural resources stipulations attached to the APD.

4.2.2 Mitigation Measures

If previously undocumented cultural sites are encountered during construction, all activities will stop in the vicinity of the discovery and the BLM will be immediately notified. The site would then be evaluated. Mitigation measures such as data recovery may be required by the BLM to prevent impacts to newly identified cultural resources.

4.3 Native American Religious Concerns

The proposed action is not known to physically threaten any TCPs, prevent access to sacred sites, prevent the possession of sacred objects or interfere or otherwise hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act or Executive Order 13007. There are currently no known remains that fall within the purview of the Native American Graves Protection and Repatriation Act or the Archaeological Resources Protection Act.

4.3.1 Direct and Indirect Effects

Although none have been identified, any heretofore-unidentified effects of the proposed action to Native American Religious Concerns are expected to be low and long-term.

4.3.2 Mitigation Measures

There would be no impacts to Native American Religious Concerns, therefore no mitigation measures are recommended. In the event of any discoveries during project implementation, the BLM will be notified.

4.4 Environmental Justice

4.4.1 Direct and Indirect Effects

Development of the proposed action would not result in negative impacts to minority or low income populations. No minority or low income populations would be directly affected in the vicinity of the proposed action. Indirect effects could include positive effects due to overall employment opportunities related to the oil and gas and service support industry in the region as well as the economic benefits to state and county governments related to royalty payments and severance taxes. A more detailed description of potential impacts is contained in the PRMP/FEIS p. 4-120 and 4-129 (BLM 2003a).

4.4.2 Mitigation Measures

No mitigation measures for Environmental Justice are recommended.

4.5 USFWS Threatened and Endangered Species

No USFWS listed species, or potential habitats, were found in the project area.

4.5.1 Direct and Indirect Effects

FFO reviewed and determined that the proposed action is in compliance with listed species management guidelines outlined in the September 2002 Biological Assessment (Cons. No. 2-22-01-1-389). No further consultation with the USFWS is required.

4.5.2 Mitigation Measures

No mitigation measures for USFWS threatened and endangered species are recommended.

4.6 Water Quality: Surface and Groundwater

Key factors that influence the surface water quality in the San Juan drainage basin include some or all of the following: sparse vegetative cover, highly erosive and saline soils, rapid runoff, livestock grazing, and mineral resources development.

4.6.1 Direct and Indirect Effects

The proposed action would temporarily expose an estimated 3.2 acres of soil as a sediment source entering area drainage ways. Compacted and graded soils occur in the existing road adjacent to the proposed project. This road has deep ruts in it created from vehicle travel during muddy conditions. One active water well occurs 0.65 mile northwest of the proposed project area.

Exposure of soils, particularly near washes and on slopes, would lead to an increase in an undetermined, but likely small, amount of sediment transport, particularly during and following storm events. The impacts to surface water quality due to short-term increases in sediment would be low as the surface water present in the general vicinity of the project area is surficial and no drainages are present. Slight alterations in project area drainage patterns may also lead to an increase in sediment transport. These increases in sediment transport would persist for several years until the disturbed areas are stabilized. Minimal amounts of hazardous materials (i.e., gas, diesel, etc.) would be used and stored on location. There would be the potential for accidental spills or releases of these materials which could impact local water quality. Potential for surface water quality impacts from accidental spills or releases of hazardous materials would be low and long-term. The impact of the proposed action on area water quality would be low in both the short and long-term.

Contamination of ground water could occur without adequate cementing and casing of the proposed well bore. With implementation of standard drilling and completion requirements, short and long-term impacts to groundwater resources are anticipated to be low.

4.6.2 Mitigation Measures

An 18-inch culvert will be installed where the proposed access road intersects with the existing road. Drainage and ditch design will be addressed during reclamation of the well pad. The existing road will be upgraded to Gold Book standard to the next intersection (0.7 mile). COPC maintains a hazardous material response contingency plan to cover eventualities, which could arise from an accidental release of hazardous materials. All field activities will be suspended in the event of muddy conditions, such that vehicle travel will be creating ruts. Adherence to APD COAs and other mitigation measures, such as adequate casing, cementing and other drilling and completion methods, will minimize effects to water quality.

4.7 Geology/General Topography

4.7.1 Direct and Indirect Effects

A total of 3.2 acres of land would be directly impacted from construction of the proposed project. To create a level well pad, required cuts and fills for Day #SN include a maximum cut of 2.5 ft and a maximum fill of 4.2 ft. The potential for water and wind erosion is moderate to severe for the soil type in the project area. The proposed action would be constructed at a grade of 2% or less, which would minimize potential erosion from surrounding topography. Impacts to project area topography as a result of the proposed action would be moderate and short-term during the construction phase of the project. Changes in topographic relief would vary in extent and would likely be noticed. The well pad construction zone would be re-contoured to match the existing topography. After the area has been re-contoured, impacts to topography would be low and long-term.

Cross contamination between geological zones could occur without adequate cementing and casing of the proposed well bores. With implementation of FFO standard drilling and completion requirements, short and long-term effect to mineral resources and geology are anticipated to be low.

4.7.2 Mitigation Measures

An 18-inch culvert will be installed where the proposed access road intersects with the existing road. Drainage and ditch design will be addressed during reclamation of the well pad. The existing road will be upgraded within 0.7 mile of the proposed project area and ditches will be pulled where possible. Following well completion, areas not needed for operation will be recontoured and reseeded. Once the proposed well is abandoned, COPC will recontour and reseed the remaining portions of the well pad in accordance with the COAs and stipulations issued by the BLM.

4.8 Paleontology Resources

4.8.1 Direct and Indirect Effects

The proposed project would be assessed individually based on BLM's PFYC system, known paleontological locality information, existing reports and data for the area. If preliminary analysis indicates that the proposed action falls within a Paleontology SDA or has a high

probability of impacting paleontological resources, additional surveys, reporting and stipulations would be required.

The San Jose Formation found within the proposed project area is not known to contain any paleontological resources. No fossils are known to occur within or proximate to the proposed project area. Although no paleontological resources are known to occur within the proposed project area, impacts to paleontological resources from the proposed action implementation could possibly occur.

Direct impacts of the proposed action to fossil localities could result from the ground disturbing activities or the disturbance of the stratigraphic context in which they are located. This project could also create indirect impacts to areas by changing erosion patterns. Additionally there could be an increase in off-road vehicular access from the project area for recreational activities. An increase in human activity in the area could increase the possibility of unauthorized removal or other alterations to paleontological resources in the area. Potential impacts to paleontological resources as a result of the proposed action would be low and long-term.

4.8.2 Mitigation Measures

All BLMIFFO paleontological resources stipulations will be followed as indicated in the COAs, attached to the APD. These stipulations may include, but are not limited to temporary or permanent fencing or other physical barriers, monitoring of earth disturbing construction, project area reduction and/or specific construction avoidance zones, and employee education. Upon review, a determination for final project clearance and stipulations shall be issued by the BLM/FFO.

If previously undocumented paleontological sites are encountered during construction, all activities shall stop in the vicinity of the discovery and the BLM will be immediately notified. The site will then be evaluated. Mitigation measures such as data recovery may be required by the BLM to prevent impacts to newly identified paleontological resources.

4.9 Soils

4.9.1 Direct and Indirect Effects

The proposed action would affect approximately 3.2 acres of soils which have been classified as having moderate water erosion potential and a severe wind erosion potential, resulting in temporary displacement, compaction, and mixing of soils. The well pad and access (approximately I acre) would remain as bare, compacted soil for the life of the project, approximately 30 years, and would be subject to an undetermined amount of wind and water erosion until the well is completely reclaimed. Compaction of the soils during construction and operation of the proposed project, coupled with the implementation of mitigation measures described below, would limit soil impacts from erosion. The most susceptible period for soil erosion impacts is during construction when strong winds or precipitation events during soil disturbing activities could mobilize soils. The impact on soils would be localized and low for the short and long-term.

4.9.2 Mitigation Measures

Industry related vehicle and pedestrian traffic will be restricted to proposed disturbance areas and existing roads. Following construction activities, unused areas will be reseeded with a BLM approved seed mix to stabilize soils and prevent erosion. Following construction, vehicle traffic will be restricted to existing bladed roads to prevent erosion, soil mixing, and compaction in adjacent areas. Implementation of proper soil salvage, storage, and reclamation will retain adequate infiltration and permeability rates that will allow for maintenance of soil moisture, which is necessary for plant growth and vigor, and minimize surface runoff.

4.10 Vegetation, Forestry

4.10.1 Direct and Indirect Effects

Direct impacts would include removal of vegetation during site clearing activities. Construction of the proposed action would result in the removal and modification of approximately 3.2 acres of sagebrush grassland vegetation. Mature big sagebrush and six small stature trees would be removed. Following completion, approximately 2.2 acres would be reclaimed resulting in a long-term loss of approximately 1-acre of vegetation. Potential impacts pertain to changes in species composition and density, and an increased potential for invasive species to establish. The impact of the proposed action on area vegetation would be low and long-term.

4.10.2 Mitigation Measures

During construction, COPC and their contractors' vehicles will only operate on areas identified in this EA as work areas and on existing roadways. Revegetation of construction zones and the pipeline ROW will be initiated by COPC immediately following construction or at the direction of the BLM. All vegetation removed during site clearing activities will be mowed and incorporated into stockpiled topsoil. The area will be reseeded with a BLM approved seed mixture shown in Table 6. All rates shown in Table 6 are for pure live seed (PLS). The amount of seed is for drilled rate, for broadcast applications the rate will be doubled.

Table 6. Farmington Field Office reclamation seed mixture.

Common Name	Variety	%for Mix	Pure Live Seeed Lbs/Acre
Western Wheatgrass	Arriba	23%	3.0
Indian Ricegrass	Paloma or Rimrock	23%	3.0
Slender Wheatgrass	San Luis	15%	2.0
Crested Wheatgrass	Hy-Crest	22%	3.0
Bottlebrush Squirreltail		15%	2.0
Four-wing Saltbush		2%	0.25

Source: BLM 2006

4.11 Invasive, Non-native Species

4.11.1 Direct and Indirect Effects

Surface disturbance activities associated with the proposed project may introduce invasive, non-native species into the project area and create the potential for further spread of noxious weeds

and invasive, non-native species. The proposed project would have low and long-term impact from the potential introduction of invasive, non-native species into the area.

4.11.2 Mitigation Measures

Proper seeding and monitoring of the disturbed areas will reduce the potential for invasive species to establish. Appropriate washing of vehicles entering the project area will reduce the potential for invasive and non-native plant species infestations. Adherence to BLM reclamation measures will minimize impacts from invasive, non-native species. Monitoring for invasive plants and appropriate control/eradication measures will be done in accordance with standard and project-specific BLM stipulations.

4.12 Special Status Species

Golden eagle, prairie falcon, and peregrine falcon have the potential to occur in the proposed project area. These BLM special management species were not observed during the field survey in June 2010. Their potential to occur within the project area is based on evaluation of the habitat, the known habitat associations of the species, and the proximity to documented nests and raptor habitat. These species have large home ranges and could potentially use the proposed project area for foraging. There is no potential nesting habitat for any special status raptor species within the proposed project area.

4.12.1 Direct and Indirect Effects

Direct impacts to golden eagles, prairie falcons, and peregrine falcons as a result of the proposed project would include the removal and modification of a maximum of 3.2 acres of potential foraging habitat. Approximately 2.2 acres would be reclaimed following construction of the proposed project. The proposed project would not result in any disturbance or modification of potential nesting habitat. Impacts from loss or modification of foraging habitat and avoidance would be low and long-term. Indirect impacts may include a change in vegetation species composition and density due to surface disturbance and reclamation, which could affect the prey base for golden eagles. Indirect impacts would be low and long-term.

4.12.2 Mitigation Measures

Construction activities will be confined to the permitted area to avoid further disruption to all raptors. Adherence to COAs and stipulations provided by the BLM will minimize effects to all raptors that may utilize the project area and vicinity for foraging. Should any nesting raptors be identified before or during construction activities, the BLM biologist will be immediately contacted in order to evaluate whether additional resource protection measures are warranted.

4.13 Wildlife

4.13.1 Direct and Indirect Effects

Construction of the proposed action would result in the temporary loss of approximately 3.2 acres of undisturbed vegetation and big game habitat. The desert scrub and pinon-juniper communities within the proposed project area and vicinity provide forage and shelter for big

game and other wildlife species. During construction activities and drilling there would be moderate, short-term impacts to area wildlife (such as deer, rabbits, and small mammals) as a result of habitat removal and human and vehicular activity and associated noise. Wildlife in the area would be displaced or may temporarily avoid the project area during construction activities. Once the project is complete wildlife would likely return to the area. Since the vegetation removed would not necessarily be replaced with the same species and in the same percentage, an alteration of habitat and habitat utilization is anticipated. Impacts to wildlife would be low and long-term following completion, operation and reclamation.

4.13.2 Mitigation Measures

Construction activities will be confined to the permitted area to avoid further disruption to wildlife. Revegetation of construction zones will be initiated by COPC immediately following construction or at the direction of the BLM. The area will be reseeded with a BLM approved seed mixture as shown in Table 6. Adherence to BLM reclamation and sanitation measures will also minimize potential impacts to wildlife.

4.14 Migratory Birds

Executive Order 13186 dated January 17, 200 l calls for increased efforts to more fully implement the MBTA. In keeping with this mandate, the BLM/FFO has consulted the PIF Bird Conservation Plan for the State of New Mexico and the USFWS list of Birds of Conservation Concern. A review of these documents, specifically as they pertain to the Colorado Plateau physiographic area, indicates there are eight "pri ority" avian species (with a known range of distribution in the FFO area) that utilize the sagebrush/grass within the Great Basin Desert Shrub habitat type that occur on the NMPIF "Highest Priority" and USFWS "Birds of Conservation Concern 2008" lists. Various types of perturbations and or anthropogenic activity may affect these species.

The New Mexico PIF Group has identified priority species of birds for the state of New Mexico by habitat type. The FFO area lies within the Colorado Plateau physiographic region as identified by the NMPIF. The Bird Conservation Plan developed for the State of New Mexico by PIF lists the sage thrasher *(Oreoscoptes montanus)* and sage sparrow *(Amphispiza belli)* within the Great Basin Desert Shrub habitat type as "highest priority" species for conservation (NMPIF 2007).

Most of the priority bird species identified by the NMPIF also occur on the USFWS Division of Migratory Bird Management "Birds of Conservation Concern 2008" within Bird Conservation Region 16 – Southern Rockies/Colorado Plateau. Birds included on this list are those "species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973" (USFWS 2008). These species and a brief assessment of the effects of the proposed action on their habitat are provided in Table 7.

Table 7. Migratory Bird Species of Concern occurring within the BLMIFFO and potential impacts.

Species	Habitat Type	Effects	Impact Rating Low/Moderate/Hi2h
Bendire's thrasher *(Toxostoma bendirei)*	sage/grass	Little effect anticipated some loss of nesting habitat; increase in prey (i.e., arthropodlikelY.	Low
Burrowing owl *(Athene cunicularia)*	sage/grass	Little effect, nests in abandoned prairie dog burrows.	Low
Grasshopper sparrow *(Ammodramus savannarum)*	sage/grass	May be positi vely affected due to conversion to grassland.	Low
Long-billed curlew *(Numenius americanus)*	sage/grass	May be positively affected due to con version to grassland.	Low
Mountain plover *(Charadrius montanus)*	sage/grass	May be positi vely affected due to conversion to grassland; may produce more prey (i.e., arthropods).	Low
Sage sparrow[1] *(Amf)his f)iza belli)*	sage/grass	Minor loss of nesting and brood rearing habitat	Low
Sage thrasher[1] *(Oreoscoptes montanus)*	sage/grass	May be some loss of sage/nesting habitat	Low
Ferruginous hawk *(Buteo regalis)*	sage/grass/ pinon-juniper interface	Loss of foraging habitat; decrease in prey (small mammals) abundance likely.	Low

I = "High Priority" bird species that are listed on the NMPIF "Highest Priority" birds of conservation concern list but not on the USFWS "Birds of Conservation Concern 2008" list.

4.14.1 Direct and Indirect Effects

Impacts to migratory birds would generall y be low. Impacts to migratory birds would include the removal of approximately 3.2 acres of Great Basin desert scrub habitat. Noise levels associated with construction and operation of the gas well could impact breeding birds by masking communications used to attract mates and defend territories. Increased noise levels could also result in nest abandonment and decreased reproductive success (BLM 2000). Impacts to migratory birds would be greater should construction occur during the breeding season of Aprill5 through July 15.

Direct and indirect impacts to migratory birds of concern would be low and short to long-term in duration.

4.14.2 Mitigation Measures

Construction activities will be confined to the proposed project area to avoid further disruption to migratory birds. Adherence to BLM reclamation and sanitation measures will minimize potential impacts. Any spills will be promptly cleaned up and COPC will prepare a hazardous material response contingency plan to cover eventualities, which could arise from an accidental release of hazardous materials. Reserve pits will be fenced and any open cavities will be covered. Any bird nests found within the proposed project area shall be reported to a BLM/FFO biologist prior to construction activities.

4.15 Grazing

4.15.1 Direct and Indirect Effects

New surface disturbance associated with construction of the proposed action would remove approximately 3.2 acres of vegetation. This would result in a minor reduction in forage and a change in the herbaceous species composition. The direct short-term loss and impact to grazing is estimated to be approximately 0.14 of a federal AUM (at an estimated 25 acres per AUM). Following interim reclamation, long-term impacts to federal AUMs would be 0.04 of a federal AUM. Indirect effects from development and maintenance of the proposed action would be the continued presence of human activity which may disturb livestock occurring within or proximate to the project area. Depending on the time of year, cattle may occur in the proposed project area. The proposed project would have low and long-term impacts to livestock grazing.

4.15.2 Mitigation Measures

The approved BLM/FFO seed mix will be used to revegetate the areas not needed for production. Interim reclamation will reduce the long-term impacts to approximately 0.04 of an AUM. COPC will fence around the reserve pit during construction and the produced water tank during operations, which will preclude livestock from utilizing produced water. Construction activities will be confined to the proposed project area to avoid further disruption to livestock. Adherence to BLM reclamation and sanitation measures will minimize potential impacts.

4.16 Recreation

4.16.1 Direct and Indirect Effects

There are no designated recreational areas within the proposed project area or immediate vicinity. However, the proposed project area does offer opportunities for dispersed recreational activities. During construction and drilling recreationists may experience an increase in traffic, fugitive dust, and sound levels, as well as night time lighting. During operation potential impacts to recreationists would be low.

4.16.2 Mitigation Measures

Suspended dust from construction will be reduced through the application of fresh water to disturbed areas and heavy traffic areas. Construction activities will be confined to the proposed project area.

4.17 Visual Resources

4.17.1 Direct and Indirect Effects

During construction and drilling operations, the effects of disturbed ground, machinery emissions, and the presence of the drill rig and construction equipment would result in low to moderate short-term visual impacts. After construction and during operation of the proposed action, low long-term visual impacts would occur from the presence of surface equipment and long-term ground disturbance.

4.17.2 Mitigation Measures

A rapid construction schedule will minimize impacts to visual resources that result from construction and drilling activities. Mitigation measures that minimize the visual impact of the project include revegetation requirements and above-ground facility paint color requirements that are established by the BLM.

4.18 Public Health and Safety

The proposed project may impact public health and safety in a number of ways. The primary activities associated with public health and safety are traffic and transportation to/from the site, including the handling, storage, and operation of equipment associated with construction act1v1t1es. Health and safety issues for construction workers include operation of heavy equipment, welding activities, and working in the vicinity of other utilities (primarily other oil and gas gathering pipelines).

4.18.1 Direct and Indirect Effects

Direct and indirect impacts to public health and safety will be low to moderate and short-term during construction and drilling. Impacts during operation would be low and long-term.

4.18.2 Mitigation Measures

Adherence to company safety policies and BLM COAs will mitigate risk for public health and safety. In addition, hauling equipment and materials for the project on public roads will comply with all Department of Transportation regulations. Any spills will be promptly cleaned up and COPC will prepare a hazardous material response contingency plan to cover eventualities, which could arise from an accidental release of hazardous materials. All drilling and equipment operation will be performed in compliance with appropriate Occupation Health and Safety Administration (OSHA) regulations.

4.19 Cumulative Effects

The leased area of the proposed action has been industrialized with oil and gas well development. The surface disturbance for each project that has been permitted has created a spreading out of land use fragmentation. The cumulative impacts fluctuate with the gradual reclamation of well abandonments and the creation of new additional surface disturbances in the construction of new access roads and well pads. The on-going process of restoration of abandonments and creating new disturbances for drilling new wells gradually accumulates as the minerals are extracted from the land. Preserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts.

Due to the absence of regulatory requirements to measure GHG emissions and the variability of oil and gas activities on federal minerals, it is not possible to accurately quantify potential GHG emissions in the affected areas as a result of approving this application for permit to drill. A general assumption, however, can be made: drilling this well may contribute to GHG emissions.

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. However, potential impacts to natural gas resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated.

Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions. Forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a ten year period. Should the trend continue, the habitats and identified drought sensitive species in these forested areas and higher elevations may also be more affected by climate change.

5.0 CONSULTATION/COORDINATION

This section includes individuals or organizations from the public, public land users, the interdisciplinary team, and permittees that were contacted during the development of this document.

Table 8. Summary of Public Contacts Made During Preparation of Document and Interdisciplinary Team.

Public Contact	Title	Organization	Present at Onsite
Steven Merrell	Construction Supervisor	ConocoPhillips Company	Yes
Dollie Busse	Construction Technician-Projects Development	ConocoPhillips Company	No
Mike Flaniken	Environmental Protection Specialist	Bureau of Land Management	Yes
Jim Copeland	Cultural Resources Specialist	Bureau of Land Management	No
Heidi Hansen	Biologist	Ecosphere Environmental Services	Yes

6.0 REFERENCES

Bureau of Land Management (BLM). 2002. Biological assessment: Impacts to threatened and endangered species related to the resource management plan. U.S. Department of the Interior, Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management (BLM). *2003a*. Farmington proposed resource management plan and final environmental impact statement. U.S. Department of the Interior, Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management (BLM). *2003b*. Farmington resource management plan record of decision. U.S. Department of the Interior, Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management (BLM). 2006. Seed Mixture for Use in Restoration/Reclamation of Public Lands for the Farmington Field Office. Instruction Memorandum No. IM-NM-200-2006-003. Bureau of Land Management, Farmington Field Office, Farmington, New Mexico.

Copeland, Jim. 20I0. Bureau of Land Management, Farmington Field Office. Personal communication on 611/20 I0 concern ing Traditional Cultural Properties within the proposed project area.

Dick-Peddie, W.A. 1993. New Mexico vegetation: Past, present, and future. University ofNew Mexico Press, Albuquerque, NM.

Enquist, Carolyn and Gori, Dave. Implications of Recent Climate Change on Conservation Priorities in New Mexico. April 2008.

Green, G.N., and G.E. Jones. 2001. Digital geologic map ofNew Mexico in ARC/INFO format. Open-file Report 408-A and B. New Mexico Bureau of Mines and Mineral Resources, Socorro, NM. Available at http://rgis.unm.edu/data_entry.cfm.

Goddard Institute for Space Studies. 2007. Annual Mean Temperature Change for Three Latitude Bands. Datasets and Images. GISS Surface Temperatures Analysis, Analysis Graphs and Plots. New York, New York . Available online at: http://data.giss.nasa.gov/gistemp/graphs/Fig.B.lrg.gif.

Government Accountability Office (GAO). 2007. US Government Accountability Office Report "Climate change, Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources" GA0-07-863, August 2007 (Ist paragraph , Ist page, GAO Highlights) at: http:/w'Ww.gao.gov/news.items/d07863.pdf.

Keetch, C. W.. 1980. Soil survey of San Juan County, New Mexico. U.S. Department of Agriculture, Natural Resources Conservation Service.

Kochert, M.N., K. Steenhoff, C.L. Mcintyre, and E.H. Craig. 2002. Golden Eagle *(Aquila chrysaetos)*. In: Poole, A., and F. Gill (eds.). The Birds of North America. No. 684. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Intergovernmental Panel on Climate Change (lPCC). 2007. Climate Change 2007: The Physical Basis (Summary for Policymakers). Cambridge University Press, Cambridge, England and New York, New York. Available online at: http://www.ipcc.ch/pdf/assessment-report/ar4/wgl/ar4-wg1-spm.pdf.

National Academy of Sciences. 2006. Understanding and Responding to Climate Change: Highlights ofNational Academies Reports. Division on Earth and Life Studies. National Academy of Sciences. Washington, D.C. Available online at: http://dels.nas.edu/basc/Climate-HIGH.pdf.

New Mexico Environment Department. 2008. Four Corners Air Quality Task Group: Home Page. Avai!able at: http://www.nmenv.state.nm.us/aqb/4C/.

New Mexico Partners in Flight (NMPIF). 2007. New Mexico Bird Conservation Plan Version 2.1. C. Rustay and S. Norris, compilers. Albuquerque, New Mexico.

Rustay, Christopher, Carol Beardmore, Mike Cater, Carol Alford, David Pashley. 2003. Draft Partners in Flight Draft Land Bird Conservation Plan New Mexico State Plan. Albuquerque, NM.

U.S. Department of Interior, Bureau of Land Management and U.S. Department of Agriculture, Forest Service (USDI/ USDA). 2006. *Final Environmental Impact Statement, Northern San Juan Basin Coal Bed Methane Project.* Durango, Colorado, July.

U.S. Environmental Protection Agency (USEPA). 2008. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006. U.S. Environmental Protection Agency. Washington, DC. Available online at: http://www.epa.gov/climatechange/emissions/downloads/08_CR.pdf

U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at http://www.fws.gov/migratorybirds/]

VanValkenburgh, R. F. 1974. Navajo Sacred Places and A Short History ofthe Navajo People. Garland American Indian Ethnohistory Series, Navajo Indians, 3 Yols. Garland Publishing, Inc., New York and London.

Wheeler, B.K. 2003. Raptors of Western North America. Princeton University Press, Princeton, NJ.

7.0 AUTHORITIES

Code of Federal Regulations (CFR)
40 CFR All Parts and Sections inclusive Protection of Environment, Revised as of July 1, 200 I.
43 CFR, All Parts and Sections inclusive - Public Lands: Interior. Revised as of October I, 2000.

U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). 200 I. The Federal Land Policy and Management Act, as amended. Public Law 94-579.

APPENDIX A

APPLICATION FOR PERMIT TO DRILL (APD)

APPENDIXB

CONDITIONS OF APPROVAL (COA)

APPENDIX C

BIOLOGICAL SURVEY REPORT

BIOLOGICAL SURVEY REPORT
CONOCOPHILLIPS COMPANY
PROPOSED DAY #SN NATURAL GAS WELL AND PIPELINE PROJECT

Photo 1. Looking south at center stake towards proposed access road and pipeline.

This report describes the potential for U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) threatened, endangered, candidate, and other designated species to occur in the project and action areas. The BLM defines the action area as any area that may be directly or indirectly impacted by the proposed action. This report is prepared in accordance with the BLM's biological survey guidelines and is intended to provide the agency with information to make determinations of effect on species with special conservation status.

PROJECT DESCRIPTION

Location: The ConocoPhillips Company (COPC) proposed Day #5N natural gas well and pipeline project would be located on public land with the federal mineral estate administered by the BLM Farmington Field Office (FFO). Legal coordinates for the proposed project surface location are 710 feet (ft) from the south line (FSL) and 1,886ft from the east line (FEL) of Section 18, Township 29 North, Range 8 West, New Mexico Principal Meridian (NMPM) in San Juan County, New Mexico. Plats of the proposed project are provided as Attachment A. A project area map showing the location of the proposed action on the Cutter Canyon, New Mexico U.S. Geological Survey 7.5-minute topographic map is provided as Attachment B.

Disturbance: Surface disturbance for the proposed Day #5N natural gas well would include a 230-ft by 300-ft well pad and a construction zone up to 50ft wide around the perimeter of the site for a maximum surface disturbance of3.03 acres. As proposed, the southeastern portion ofthe well pad would require cuts with the largest cut of2.5 ft. The northern portion of the well pad would require fills with the largest fill of 4.2 ft. A new, 111-ft access road would be constructed within a 20-ft corridor from the edge of the existing road to provide access to the well pad for a maximum surface disturbance of 0.08 acre. The proposed 221-ft well tie pipeline would be constructed within a 40-ft wide right-of-way (ROW) within the proposed well pad and parallel to the proposed access road for

a maximum surface disturbance of 0.2 acre. The proposed pipeline would connect the proposed Day #5N to the existing Blanco Lateral A-13 pipeline. The proposed access road would be contained within the proposed pipeline ROW and would not result in new disturbance. The total proposed surface disturbance from the well pad, access road, and well tie pipeline would be a maximum of 3.2 acres.

Previous Disturbance: The entire proposed well pad project would be located on previously undisturbed terrain. Approximately 50 ft (0.05 acre) of the proposed well tie pipeline would be constructed on previous disturbance associated with the existing road and Blanco Lateral A-13 pipeline.

METHODOLOGY

Off-site Methods: Prior to conducting fieldwork, Ecosphere biologists compiled a list of USFWS and BLM species with special conservation status that occur or have the potential to occur in San Juan County, New Mexico. USFWS listed species were obtained from the USFWS Southwest Region Endangered Species List (Table I) (USFWS 2009). BLM special status species (Table 2) were compiled from the BLM Farmington Field Office (BLM/FFO) Instruction Memorandum No. IM-NM 200-2008-01 (BLM 2008) and the Farmington Resource Management Plan (BLM 2003).

On-site Methods: An onsite and pedestrian survey of the proposed Day #5N natural gas well and pipeline project were conducted on June 30, 2010. Parallel transects spaced approximately 20 ft apart were surveyed over the entire project area. The weather was sunny with an ambient temperatures near 70° F. All plant and wildlife species and signs of wildlife observed in the project area were recorded and digital photos of the project area were taken. Binoculars were used to survey for raptors and potential nest habitat. The habitat was evaluated for all USFWS and BLM species with special conservation status that have the potential to occur in the project area or action area (Tables I and 2).

ACTION AREA

Action Area: The action area consists of the proposed project area (well pad, construction zone, access road, pipeline ROW) and surrounding terrain within a 1/3-mile radius of the project area.

Physical Description: The proposed project would be located at an elevation of 6,513 ft on Manzanares Mesa. The general topography in the action area is characterized by gently rolling terrain that slopes into Medina Canyon to the southwest and Manzanares Canyon to the north. Southern slopes of 20% drop into Medina Canyon 200 ft below the proposed project area. Steep, terraced cliffs associated with the canyons occur within 2 miles of the proposed project area. Existing oil and gas roads cross Manzanares Mesa near the proposed project area. The topography in the proposed well pad is characterized by approximately 10% north aspect slopes in the northern portion, 8% west aspect slopes from the well head to the northwest corner, and 4% southwest aspect slopes from the well head to the southwest corner. Surface geology of the proposed project area is derived from the San Jose Formation. Soils in the proposed project area are classified as Penistaja loam (USDI/USDA 2007). Cryptobiotic soil crusts were observed in the proposed project area.

SPECIES	CONSERVATION STATUS	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR IN THE PROJECT OR ACTION AREA
Southwestern willow flycatcher *(Empidonax trail/ii extimus)*	E	Breeds in dense, shrubby riparian habitats, usually in close proximity to surface water or saturated soil.	The project and action area do not contain riparian habitat.
Yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	C	Breeds in riparian woodlands with dense, understory vegetation.	The project and action area do not contain riparian habitat.
Mountain plover *(Charadrius montanus)*	p	Breeds in extremely dry, level shrublands, shortgrass prairie, barren agricultural fields, and other sparsely vegetated areas.	The action area does not contain level, sparsely vegetated areas, or agricultural fields.
FISH			
Colorado pikeminnow *(Ptychocheilus lucius)*	E	Large rivers with strong currents, deep pools, and quiet backwaters.	o perennial water resources occur in the project area or vicinity.
Razorback sucker *(Xyrauchen texanus)*	E	Medium to large rivers with silty to rocky substrates. Prefers strong currents and deep pools.	o perennial water resources occur in the project area or vicinity.
PLANTS			
Knowlton's cactus *(Pediocactus knowltonii)*	E	Alluvial deposits that form rolling, gravelly hills in pinon-juniper and sagebrush communities (6,200-6,400 ft).	No alluvial deposits or gravelly soils occur in the project area or vicinity.
Mancos milkvetch *(Astragalus humillimus)*	E	Cracks of Point Lookout Sandstone of the Mesa Verde series (5,000-6,000 ft).	Project area and vicinity geology is not derived from Point Lookout Sandstone.
Mesa Verde cactus *(Sclerocactus mesae-verdae)*	T	Highly alkaline soils in sparse shale or adobe clay badlands of the Mancos and Fruitland formations (4,000-5,550 ft).	Project area and vicinity geology is not derived from the Mancos Shale formation

Source: USFWS 2010

BLM Special Management Species: Of the ten species warranted for special management consideration by the BLM/FFO (BLM 2008), three species, the American peregrine falcon *(Falco peregrinus anatum)*, golden eagle *(Haliaeetus leucocephalus)*, and prairie falcon *(Falco mexicanus)*, have the potential to occur within the project area. Species listed by the BLM/FFO and their potential to occur in the project or action areas are summarized in Table 2. None of these BLM special management species were observed during the field survey and their potential to occur is based on evaluation of the proposed project area and action area habitats and the known habitat associations of the listed species.

Table 2. BLMIFFO species with special management status and their potential to occur in the project and acf1on areas based upon habl'tat assoc1at10ns.

SPECIES	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR IN PROJECT OR ACTION AREA [1]
BIRDS		
American peregrine falcon *(Falco peregrinus anatum)*	Rugged terrain with rocky cliffs and canyons (30-1 ,000+ ft high), adjacent to rivers, lakes, or streams. Urban areas with towers and buildings also inhabited.	**Potential foraging habitat is located in the project and action areas.**
Bald eagle *(Haliaeetus leucocephalus)*	Nest in forested areas adjacent to large bodies of water.	o large bodies of water occur within the project or action area.
Burrowi ng owl *(Athene cunicularia)*	Rarely dig their own burrows and are typically associated with prairie dog colonies. Found in dry, open, short-grass, treeless plains. Use areas that include shrubs such as fourwing saltbush and rabbitbrush. Also inhabit human-modified landscapes, such as golf courses and parking lots	No prairie dog colonies or short grassland occur within the project or action area.
Ferruginous hawk *(Buteo regalis)*	Flat or rolling terrain in grasslands, shrub-steppes, deserts, or badlands. Prefers elevated nest sites (e.g., buttes, utility poles, trees and sometimes, on the ground).	Project and action areas do not contain broad expanses of flat or rolling terrain or expansive grasslands.
Golden eagle *(Aquila chrysaetos)*	In the West, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	**Potential foraging habitat is located in the project and action areas.**
Mountain plover *(Charadrius montanus)*	Breeds in flat, open grasslands. Often associated with prairie dog towns and intensive grazing.	No flat open grasslands occur in the project or action area.
Prairie falcon *(Falco mexicanus)*	Arid, open regions of grassland or scrub vegetation with cliff formations that are at least 30 ft high. Breeding cliffs are sometimes in semi-open regions with scattered conifer trees and occasionally dense woodlands.	**Action area contains expanses of arid, open habitat suitable for foraging.**
Yellow-billed cuckoo *(Coccyzus americanus)*	Breeds in riparian woodlands with dense, understory vegetation.	o riparian habitat exists in the project or action area.
PLANTS		
Aztec gilia *(Aiiciella formosa)*	Salt desert scrub communities in soils of the acimiento Formation (5,000-6,000 ft).	The project and action area do not occur on the acimiento Formation; no suitable habitat occurs.
Brack's hardwall cactus *(Sc/erocactus cloveriae* ssp. *brackii)*	Sandy clay of the ac1m1ento Formation in sparse shadscale scrub (5,000-6,000 ft).	The project and action area do not occur on the acimiento Formation; no suitable habitat occurs.

[1] Bold md1cates the spec1es has potent1al hab1tat m the prOJect or actiOn area; Source: BLM 2008

There are no perennial streams in the proposed project area. There are no permanent surface water sources or riparian areas in the action area. Surface water runoff would flow southwest into Medina Canyon.

Biological Description: The entire proposed project area is located on previously undeveloped habitat. The plant communities in the proposed project and action area consist of desert scrub and pinon-juniper woodlands. Total vegetation cover in the proposed project area is between 50 to 80%. Approximately 50% of the proposed project area appears to have been been treated to facilitate better grazing opportunities for livestock and is dominated by Russian thistle *(Sa/sola tragus)* and cheatgrass *(Bromus tectorum)*. Mature, 3 to 4-ft tall big sagebrush *(Artemisia tridentata)* dominate the untreated areas in the proposed project area. Six small stature trees less than 10 ft tall, two Utah junipers *(Juniperus osteosperma)* and four pinon pines *(Pinus edu/is)*, are located in the construction zone on the north side of the well pad. A dense, mature pinon- juniper woodland associated with Medina Canyon occurs 200 ft south of the proposed project area. No prairie dog *(Cynomys* sp.) colonies were observed in the action area. No raptors or raptor nests were observed in the action area. According to the BLM/FFO, 27 recorded historic or currently active raptor nests occur within 10 miles of the action area. Suitable raptor habitat surrounds the proposed project area, the closest at 0.75 miles south in the cliffs associated with Medina Canyon (BLM 2009, unpublished data). A complete list of plants and wildlife sign observed during the field surveys is included as Appendix C.

Specially Designated Areas: No BLM/FFO Specially Designated Areas (SDA) or Areas of Critical Environmental Concern (ACEC) are located in the vicinity of the proposed project area.

SURVEY RESULTS

USFWS T&E Species: According to the USFWS, there are 10 federally listed threatened, endangered, candidate or proposed threatened species with potential to occur in San Juan County, New Mexico. Table 1 lists these species, their conservation status, habitat associations, and potential to occur in the project or action area.

Table 1. Species listed by the USFWS under the authority of the Endangered Species Act of 1973 for San Juan County, New Mexico and their potential to occur in the proposed project and action areas based on habitat associations (E = endangered; T = threatened; C =candidate; P =proposed threatened).

SPECIES	CONSERVATION STATUS	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR IN THE PROJECT OR ACTION AREA
MAMMALS			
Black-footed ferret *(Mustela nigripes)*	E	Open grasslands with year-round prairie dog colonies.	o prairie dog colonies identified tn the project or action area.
BIRDS			
Mexican spotted owl *(Strix occidentalis lucida)*	T	ests in caves, cliffs, or trees in steep-walled canyons of mixed conifer forests.	No steep-walled canyons with mixed conifer forest or designated critical habitat occur in the project or action area.

DISCUSSION

The desert scrub and pinon- juniper communities in the action area provide excellent foraging habitat for golden eagles, peregrine falcons, and prairie falcons. Suitable nesting habitat for peregrine falcons, golden eagles and prairie falcons surrounds the proposed project area to the north, east, south and west with the closest at 1.8 miles southwest in the cliffs associated with Medina Canyon. There is no potential nesting habitat within the proposed project or action areas. The area within a five mile radius of the proposed project contains two peregrine falcon nests and six golden eagle nests. Twenty-seven additional raptor nests occur within 10 miles of the proposed project area (BLM 2009, unpublished data). The proposed project area could be within the hunting and home range territories of peregrine falcon , golden eagle, and prairie falcon nesting pairs. Enderson and Craig (1997) estimated peregrine home ranges in Colorado of 222 to 937 square miles Average hunting territory size for golden eagles was found to be 19 to 59 square miles in California and 25 to 35 square miles in Utah (Weidensaul, 1996). Average home range sizes for prairie falcons were found to be approximately 142 square miles in northern California and approximately 47 square miles in Wyoming (Haak 1982; Squires et al. 1993). Given the distance of known territories and suitable nesting habitat from the proposed location and the possibility of yet undocumented territories, it is possible that these raptor species may forage in the proximity or fly through the proposed project and action areas. Direct impacts to peregrine falcons, golden eagles, and prairie falcons as a result of the proposed project would include removal and modification of approximately 3.2 acres of potential foraging habitat. Approximately I acre offoraging habitat would be removed for the long-term operation of the project. Six small stature trees would be removed with the proposed action. Additional impacts to raptors may include avoidance of the project area during construction, drilling, and operation due to disturbance and activity from human and vehicle presence. Indirect impacts may include a short-term change in vegetation species composition and density due to surface disturbance and reclamation, which could affect the prey base for raptor species. Impacts are expected to be low and long-term.

Because the proposed project is located on undisturbed terrain, removal of shrubs would result in a loss of habitat for a variety of shrub-nesting birds protected under the Migratory Bird Treaty Act (MBTA). Avian conservation plans, including the US Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC) 2008 Report (USFWS 2008) and the New Mexico Partners in Flight (NMPIF) New Mexico Bird Conservation Plan (NMPIF 2007), identify species at greater conservation risk based on moderate to severe threats to the species or their habitats and unknown or declining local population trends. Several birds included on both the BCC list and included as "conservation priority species" by NMPIF that may utilize the proposed project area include gray vireo *(Empidonax wrightii)* and Bendire's thrasher *(Toxostoma bendirei)*. Other NMPIF priority species which may utilize the proposed project area include golden eagle and prairie falcon. No birds from either thNMPIF priority or the BCC list were observed during the June 30, 2010 field investigation. Direct impacts to these species are expected to be greater if construction and drilling occurs during the breeding season from April to August when nest destruction is possible. Additionally, noise and human disturbance may cause some nest abandonment in adjacent areas during this time frame.

The proposed project would have short-term impacts to big game due to increased traffic, human activity, and noise levels during construction and drilling. Low, long-term impacts to big game include vegetation loss and increased habitat fragmentation post-construction of the proposed

project. Big game would most likely temporarily avoid the area during the operation of the proposed action due to periodic noise or traffic. The proposed project would remove approximately 3.2 acres of undisturbed vegetation resulting in a minor loss of big game foraging habitat.

CERTIFICATION

Conclusions are based on actual field examination and are correct to the best of my knowledge.

Signature of Field Biologist: _____ Date: 8/27/10

Heidi Hansen, Wildlife Biologist
Ecosphere Environmental Services
776 E. 2"d Ave.
Durango, CO 81 30 l
(970) 382-7256

LITERATURE CITED AND REFERENCES

Bureau of Land Management (BLM). 2008. Special status species management. Instruction Memorandum No. IM-NM 200-2008-01. Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management (BLM). 2003. Farmington proposed resource management plan and final environmental impact statement. Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management. 1998. Endangered, threatened and sensitive plant field guide. Bureau of Land Management, Albuquerque, NM and Ecosphere Environmental Services, Farmington, NM.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The birder's handbook. Simon & Schuster Inc., New York, NY.

Enderson, J. H. and G. R. Craig. 1997. Wide ranging by nesting Peregrine Falcons *(Falco peregrinus)* determined by radiotelemetry. Journal of Raptor Research 31:333-338.

Fisher, C., D. Pattie, and T. Hartson. 2000. Mammals of the Rocky Mountains. Lone Pine Publishing, Vancouver, BC.

Haak, B. A. 1982. Foraging ecology of Prairie Falcons in northern California. Master's thesis, Oregon State Univ., Corvallis.

Hughes, J.M. 1999. Yellow-billed Cuckoo (*Coccyzus americanus)*. *In* The birds ofNorth America, no. 418 (A. Poole and F. Gill, eds.). The Birds ofNorth America, Inc., Philadelphia, PA.

Manley, K., G.R. Scott, and R.A. Wobus. 1987. Geological map of the Aztec 1ox 2° Quadrangle, northwestern New Mexico and southern Colorado. 1:250,000.

Kochert, M.N., K. Steenhoff, C.L. Mcintyre, and E.H. Craig. 2002. Golden Eagle *(Aquila chrysaetos)*. *In* The birds ofNorth America, no. 684 (A. Poole and F. Gill, eds.). The Birds ofNorth America, Inc., Philadelphia, PA.

New Mexico Partners in Flight (NMPIF). 2007. New Mexico Bird Conservation Plan Version 2.1. C. Rustay and S. Norris, compilers. Albuquerque, New Mexico.

New Mexico Rare Plant Technical Council. 2002. New Mexico rare plants homepage. Version 15. New Mexico Rare Plants Technical Council, Albuquerque, NM. Available at http://nmrareplants.unm.edu.

Sawyer, H., R.M. Nielson, F. Lindzey, and L.L. McDonald. 2006. Winter Habitat Selection of Mule Deer Before and During Development of a Natural Gas Field. Journal of Wildlife Management. 70(2):396-403.

Squires, J.R., S.H. Anderson, and R. Oakleaf. 1993. Home Range Size and Habitat-Use Patterns of Nesting Prairie Falcons Near Oil Developments in Northeastern Wyoming. Journal of Field Ornithology 64:1-10.

Tidwell , W.O. 1972. Physiography of the intermountain region. pp. 10-18 *In* Cronquist, A., A.H. Holmgren, N.H. Holmgren and J.L. Reveal. Intermountain flora. Volume I. Hafner Publishing Co., New York, NY.

U.S. Department of Agriculture Forest Service (USDA FS). 2009. Fire Effects Information System. Index of Species Information. Available online at: www.fs.fed.us/database/feis

U.S. Department of Interior, U.S. Department of Agriculture (USDVUSDA). 2007. Natural Resources Conservation Service. Rio Arriba, New Mexico, Parts of Rio Arriba and Sandoval Counties. Available at http://websoilsurvey.nrcs.usda.gov/app/WebSoiiSurvey.aspx

U.S. Fish and Wildlife Service (USFWS). 2009. Endangered species lists. U.S. Fish and Wildlife Service, Southwest Region Ecological Services. Available at http://www.fws.gov/southwest/es/EndangeredSpec ies/lists/.

U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern. U.S. Fish and Wildlife Service, Division of Migratory Bird Management. Arlington, West Virginia. Available online: http://migratorybirds.fws.gov/reports/bcc2002.pdf

U.S. Fish and Wildlife Service (USFWS). 2002. Southwestern willow flycatcher recovery plan. U.S. Fish and Wildlife Service, Albuquerque, NM.

U.S. Fish and Wildlife Service (USFWS). 1998. Black-footed ferret *(Mustela nigripes)* fact sheet. U.S. Fish and Wildlife Service. Available at http://endangered.fws.gov/i/A07.html.

U.S. Fish and Wildlife Service (USFWS). 1995. Recovery plan for the Mexican spotted owl. Volume I. U.S. Fish and Wildlife Service, Albuquerque, NM.

U.S. Geological Survey (USGS). 2004. National Gap Analysis Program. Southwest Regional GAP Analysis Project— Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University.

Weidensaul, Scott. 1996. The Raptor Almanac. The Lyons Press, Hong Kong, China.

Wheeler, B.K. 2003. Raptors of Western North America. Princeton University Press, Princeton, NJ.

ATTACHMENT A. PROJECT PLATS

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State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
October Ul, 8006

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OIL CONSERVATION DMSION
1220 Soulb SL Frenc:18 Dr.
Suta Ft, lOI 87&06

,__.Dr....h.-,_

O AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

'API	..... Code	BLANCO WESAVEROE / BASIN DAKOTA
- Code	DAY	5N
'OGJIID	CONOCOPHILLIPS COWPANY	1513'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	18	29N	8W		710'	SOUTH	1886'	EAST	SAN JUAN

11 Bottom Hole Location If Different From Surface

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NO ALLOWABLE WILL BE ASSICNED TO THJS COWPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
If OR A NON-STANDARD UNIT HAS BUN APPROVED BY THE DIVISJON

1r OPERATOR CERTIFICATION

tnsf USA sr-678414

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LD«<. 107.71:J7J' If (NIIOIJ)
LAT. W43.1MZ5' N (HIIOZ7)

FND 3-1/4" BC BLM 1950

N 89°59'34" W 1879.74' (M)
N 89°59' W 1877.70' (R)
BASIS OF BEARINGS

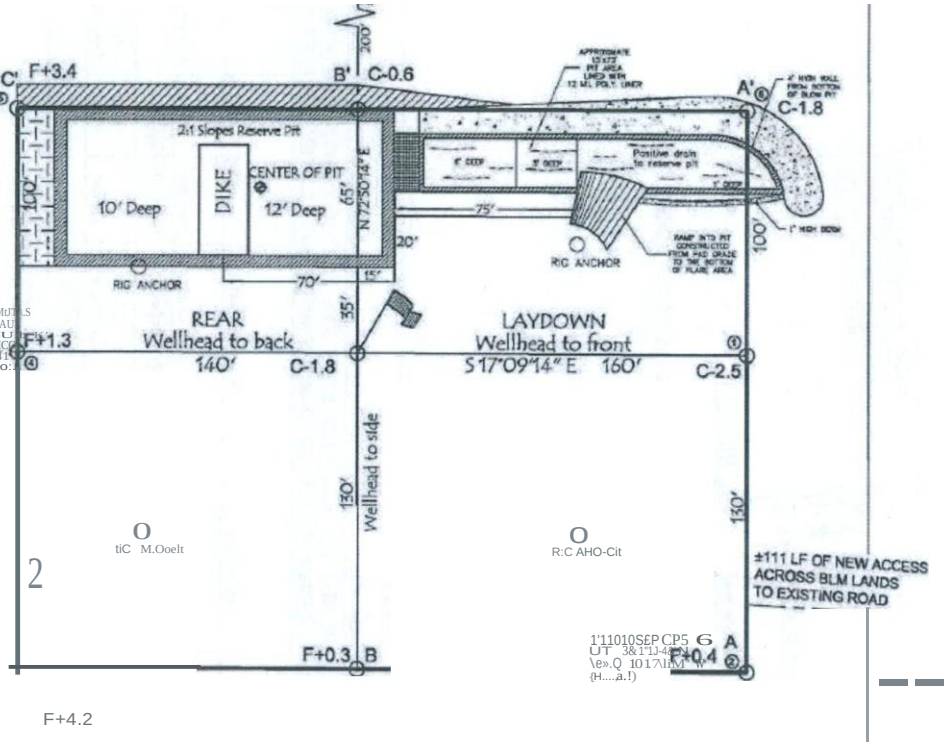
S 79°00'00" E 33.66' (R&M)
TO CALC CORNER

S 89°58'22" W 2!100.111' (lol)
N 89°59' W 2.5M.42" (II)

SURVEYOR CERTIFJCAtION
Date of Survey
Signature and Seal of Professional Surveyor:
MAY 25 2010
DAVID R. RUSSELL NEW MEXICO 10201 REGISTERED PROFESSIONAL LAND SURVEYOR
DAVID RUSSELL
Certificate Number 10201

WELL FIAG
LATITUDE 36 71991• N
LONGITUDE: 107.71373• W
CENTER OF PIT
LATITUDE 36 12010• N
LONGITUDE 107 71360• W
ELEVATION 6499 0'
DATUM NAD83 & NAVD88

CONOCOPHILLIPS COMPANY
DAY #SN
710" FSL & 1886" FEL
LOCATED IN THE SW/4 SE/4 OF SECTION 18
T29N RSW. N M PM .
SAN JUAN COUNTY, NEW MEXICO
GROUND ELEVATION 6513' NAVD 88
FINISHED PAD ELEVATION 6511.0', NAVD 88



TOTAL PERMmEO AREA
330" X 400" = 3.03 ACRES
SCALE: 1" = 60"
JOB No: COPC314
DATE: 06/0S/10
DRAWN BY: GRR

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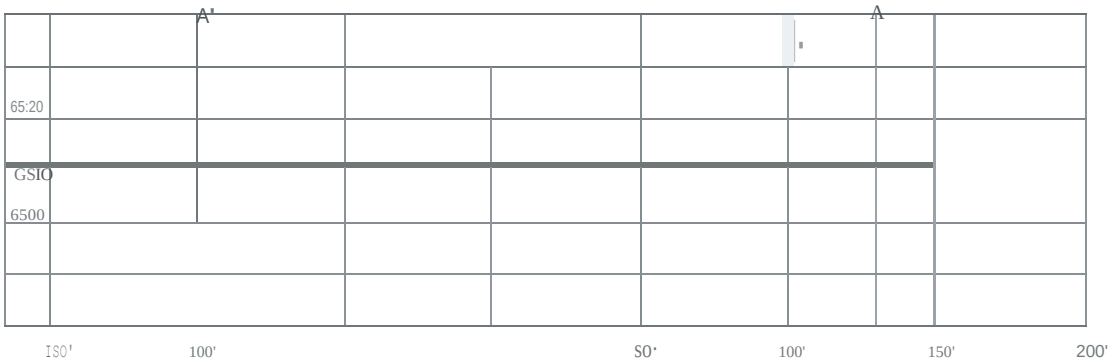
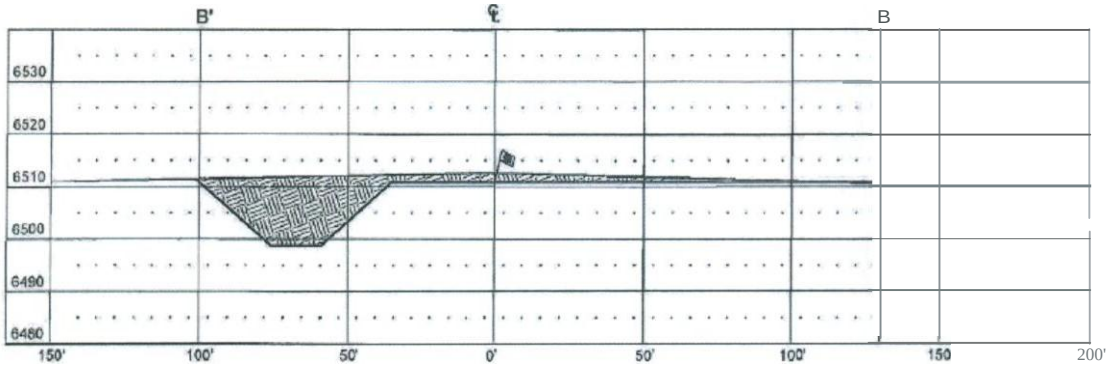
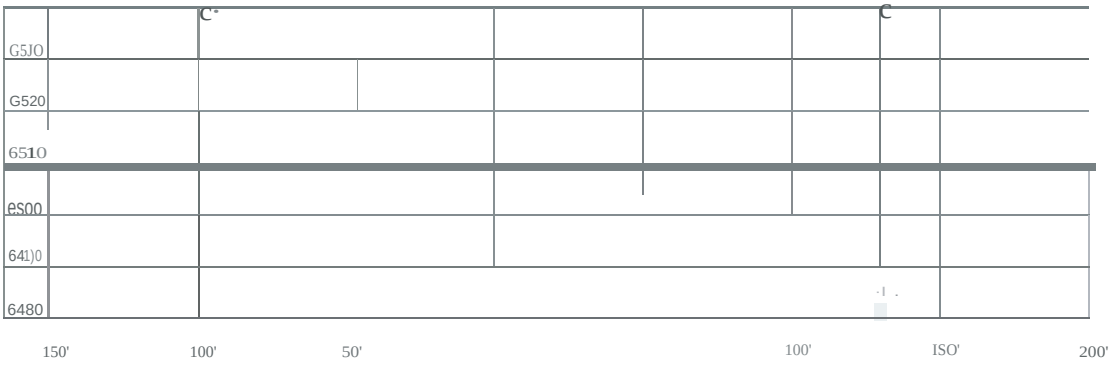
Russell Surveying
1401W.Aztg81\'d.t2
AztK, New Mexleo 17410
(505)334-8637

WELL FLAG LATITUDE:
36.71991• N LONGITUDE:
107.71373• W DATUM:
NAD83

CONOCOPHILLI PANY
OAY#SN
710' FSL & 1886' FEL
LOCATED IN THE SW/4 SE/4 OF SECTION 18,
T29N, R8W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO
GROUND EIEVATION: 6513', NAVD 88
FINISHED PAD ELEVATION: 6511.0', NAVO 88







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VERT. SCALE: 1"=" 30'
HORZ. SCALE: 1" = 50'
JOB No.: COPC384
DATE: 06108110

CUT

FILL

Russell Surveying
1-408 W. Aztec: Blvd.'2
Aztec, New Mexico 17410
(11011) 334-11631

August 2010

Enterprise Products

ENTERPRISE FIELD SERVICES, LLC

BLANCO GATHERING SYSTEM

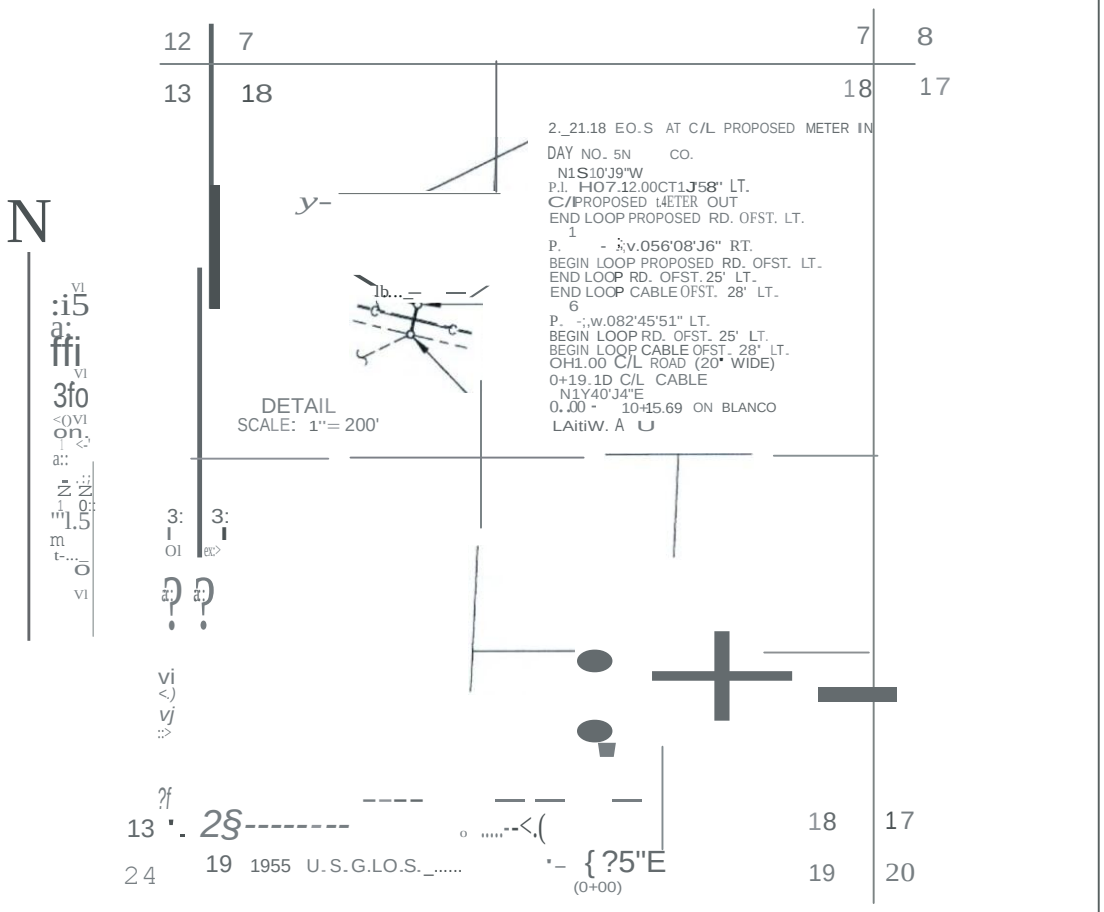
DWG. NO. BLA013 0289,
WO NO.
RW NO. 1070073
DATE 07/07/10
SCALE 1" = 1000'
SURVEY£0 06728/10

LINE CONOCOPHILLIPS CO. – DAY NO. 5N

FROM 0+00 = 10+15.69 ON BLANCO LATERAL A–13

(013A731.00-0001)

COUNTY SAN JUAN STATE NEW MEXICO SECTION 18 TOWNSHIP 29 N RANGE 08-W, N.M.P.M.



OWN. BY LS CONSTR. COMMENCED APPL OWG. SLACK CHAIN

CKO. BY MD CONSTR. COMPLETED DATE PIPE SIZE 4.50" O.D.

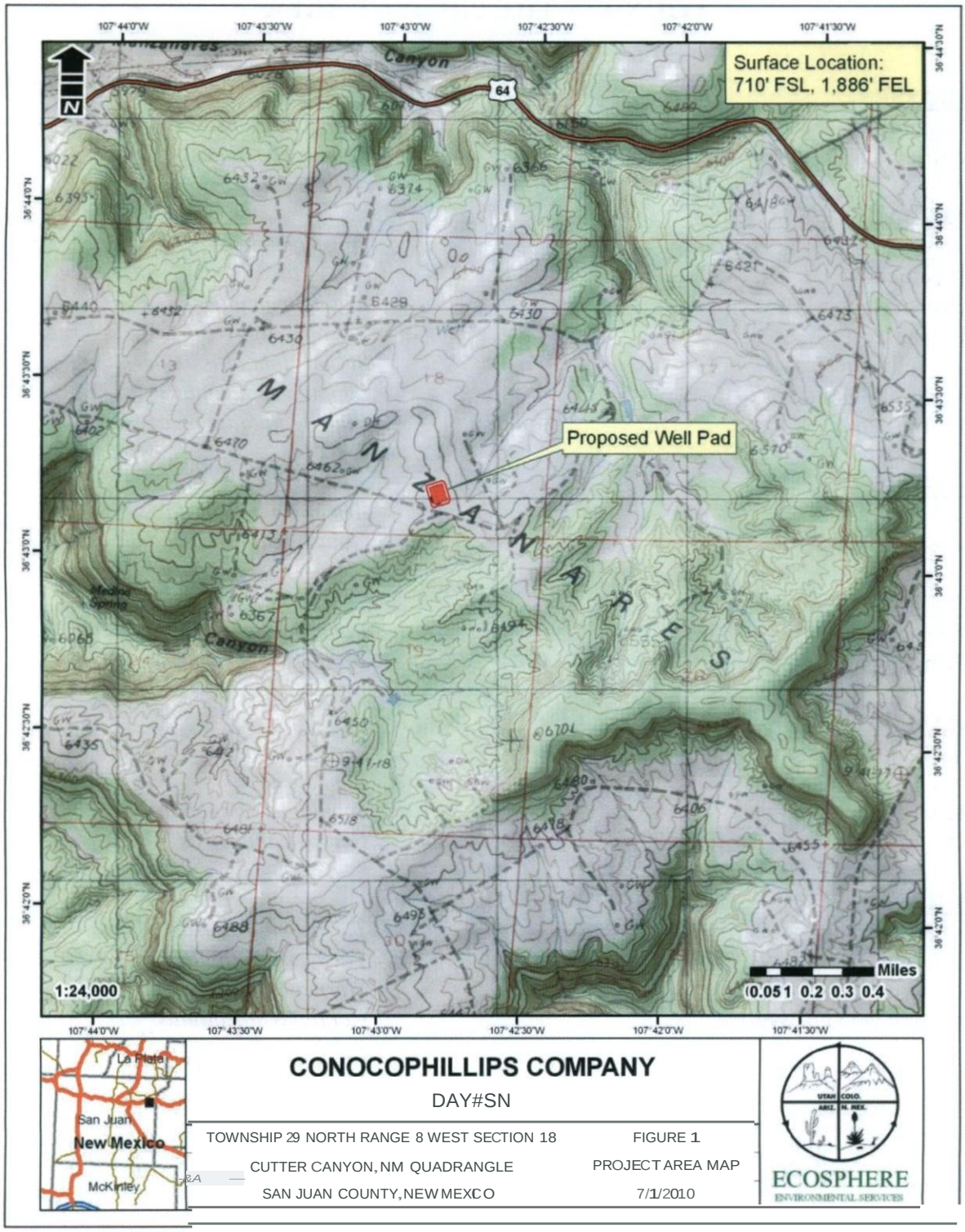
PRINT RECORD PIPE DATA "ETER STA. NO. MV/OK

NOTE: WELL FLAG
SURVEY LOOPS PROPOSED ROAD
LOCATION *NOT* BUILT

SURFACE LOCATION: 710' FSL, 1886' FEL

n.	SUBDIVISION	OWNER	LESSEE	METER(S)	RODS	ACRE(S)
0j	ALL SEC. 18	UNITED STATES	WIUIAM L. NOBLES (ESTATE)		13.405	0.203

ATTACHMENT B. PROJECT AREA MAP



ATTACHMENT C. PLANTS AND ANIMALS FOUND IN THE PROJECT AREA

GRASSES	
cheatgrass	*Bromus tectorum*
squirreltail	*Elymus elymoides*
HERBACEOUS FORBS	
daisy globemallow	*Erigeron* spp.
redstem stork's bill	*Sphaeralcea* spp.
Russian thistle	*Erodium cicutarium*
tall tumblemustard	*Sa/sola tragus*
Western sticktight	*Sysimbrium altissimum*
woolly plantain	*Lappula occidentalis*
	Plantago patagonica
SHRUBS	
big sagebrush	*Artemisia tridentata*
broom snakeweed	*Gutierrezia sarothrae*
TREES	
pinon pine	*Pinus edulis*
Utah juniper	*Juniperus osteosperma*
MAMMALS	
black-tailed jackrabbit	*Lepus californicus*
cow	*Bos taurus*
desert cottontai l	*Sylvilagus audubonii*
elk	*Cervus canadensis*
BIRDS	
American robin	*Turdus migratorius*
violet-green swallow	*Tachycineta thalassina*
Western meadowlark	*Sturnella neglecta*
Western wood pewee	*Contopus sordidulus*

BIOLOGICAL SURVEY REPORT
CONOCOPHILLIPS COMPANY
PROPOSED DAY #SN NATURAL GAS WELL AND PIPELINE PROJECT

Photo 1. Looking south at center stake towards proposed access road and pipeline.

This report describes the potential for U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) threatened, endangered, candidate, and other designated species to occur in the project and action areas. The BLM defines the action area as any area that may be directly or indirectly impacted by the proposed action. This report is prepared in accordance with the BLM's biological survey guidelines and is intended to provide the agency with information to make determinations of effect on species with special conservation status.

PROJECT DESCRIPTION

Location: The ConocoPhillips Company (COPC) proposed Day #SN natural gas well and pipeline project would be located on public land with the federal mineral estate administered by the BLM Farmington Field Office (FFO). Legal coordinates for the proposed project surface location are 710 feet (ft) from the south line (FSL) and 1,886 ft from the east line (FEL) of Section 18, Township 29 North, Range 8 West, New Mexico Principal Meridian (NMPM) in San Juan County, New Mexico. Plats of the proposed project are provided as Attachment A. A project area map showing the location of the proposed action on the Cutter Canyon, New Mexico U.S. Geological Survey 7.5-minute topographic map is provided as Attachment B.

Disturbance: Surface disturbance for the proposed Day #SN natural gas well would include a 230-ft by 300-ft well pad and a construction zone up to 50 ft wide around the perimeter of the site for a maximum surface disturbance of3.03 acres. As proposed, the southeastern portion ofthe well pad would require cuts with the largest cut of2.5 ft. The northern portion of the well pad would require fills with the largest fill of 4.2 ft. A new, 111-ft access road would be constructed within a 20-ft corridor from the edge of the existing road to provide access to the well pad for a maximum surface disturbance of0.08 acre. The proposed 221-ft well tie pipeline would be constructed within a 40-ft wide right-of-way (ROW) within the proposed well pad and parallel to the proposed access road for

a maximum surface disturbance of 0.2 acre. The proposed pipeline would connect the proposed Day #5N to the existing Blanco Lateral A-13 pipeline. The proposed access road would be contained within the proposed pipeline ROW and would not result in new disturbance. The total proposed surface disturbance from the well pad, access road, and well tie pipeline would be a maximum of 3.2 acres.

Previous Disturbance: The entire proposed well pad project would be located on previously undisturbed terrain. Approximately 50 ft (0.05 acre) of the proposed well tie pipeline would be constructed on previous disturbance associated with the existing road and Blanco Lateral A-13 pipeline.

METHODOLOGY

Off-site Methods: Prior to conducting fieldwork, Ecosphere biologists compiled a list of USFWS and BLM species with special conservation status that occur or have the potential to occur in San Juan County, New Mexico. USFWS listed species were obtained from the USFWS Southwest Region Endangered Species List (Table 1) (USFWS 2009). BLM special status species (Table 2) were compiled from the BLM Farmington Field Office (BLMIFFO) Instruction Memorandum No. IM-NM 200-2008-01 (BLM 2008) and the Farmington Resource Management Plan (BLM 2003).

On-site Methods: An onsite and pedestrian survey of the proposed Day #5N natural gas well and pipeline project were conducted on June 30, 2010. Parallel transects spaced approximately 20 ft apart were surveyed over the entire project area. The weather was sunny with an ambient temperatures near 70° F. All plant and wildlife species and signs of wildlife observed in the project area were recorded and digital photos of the project area were taken. Binoculars were used to survey for raptors and potential nest habitat. The habitat was evaluated for all USFWS and BLM species with special conservation status that have the potential to occur in the project area or action area (Tables I and 2).

ACTION AREA

Action Area: The action area consists of the proposed project area (well pad, construction zone, access road, pipeline ROW) and surrounding terrain within a 1/3-mile radius of the project area.

Physical Description: The proposed project would be located at an elevation of 6,513 ft on Manzanares Mesa. The general topography in the action area is characterized by gently rolling terrain that slopes into Medina Canyon to the southwest and Manzanares Canyon to the north. Southern slopes of 20% drop into Medina Canyon 200 ft below the proposed project area. Steep, terraced cliffs associated with the canyons occur within 2 miles of the proposed project area. Existing oil and gas roads cross Manzanares Mesa near the proposed project area. The topography in the proposed well pad is characterized by approximately 10% north aspect slopes in the northern portion, 8% west aspect slopes from the well head to the northwest corner, and 4% southwest aspect slopes from the well head to the southwest corner. Surface geology of the proposed project area is derived from the San Jose Formation. Soils in the proposed project area are classified as Penistaja loam (USDIIUSDA 2007). Cryptobiotic soil crusts were observed in the proposed project area.

There are no perennial streams in the proposed project area. There are no permanent surface water sources or riparian areas in the action area. Surface water runoff would flow southwest into Medina Canyon.

Biological Description: The entire proposed project area is located on previously undeveloped habitat. The plant communities in the proposed project and action area consist of desert scrub and pinon-juniper woodlands. Total vegetation cover in the proposed project area is between 50 to 80%. Approximately 50% of the proposed project area appears to have been been treated to facilitate better grazing opportunities for livestock and is dominated by Russian thistle *(Sa/sola tragus)* and cheatgrass *(Bromus tectorum).* Mature, 3 to 4-ft tall big sagebrush *(Artemisia tridentata)* dominate the untreated areas in the proposed project area. Six small stature trees less than 10 ft tall, two Utah junipers *(Juniperus osteosperma)* and four pifion pines *(Pinus edulis),* are located in the construction zone on the north side of the well pad. A dense, mature pifion- juniper woodland associated with Medina Canyon occurs 200ft south of the proposed project area. No prairie dog *(Cynomys* sp.) colonies were observed in the action area. No raptors or raptor nests were observed in the action area. According to the BLMIFFO, 27 recorded historic or currently active raptor nests occur within 10 miles of the action area. Suitable raptor habitat surrounds the proposed project area, the closest at 0.75 miles south in the cliffs associated with Medina Canyon (BLM 2009, unpublished data). A complete list of plants and wildlife sign observed during the field surveys is included as Appendix C.

Specially Designated Areas: No BLMIFFO Specially Designated Areas (SDA) or Areas of Critical Environmental Concern (ACEC) are located in the vicinity of the proposed project area.

SURVEY RESULTS

USFWS T&E Species: According to the USFWS, there are 10 federally listed threatened, endangered, candidate or proposed threatened species with potential to occur in San Juan County, New Mexico. Table 1 lists these species, their conservation status, habitat associations, and potential to occur in the project or action area.

Ta ble 1. Species listed by the USFWS under the authority of the Endangered Species Act of 1973 for San Juan County, New Mexico and their potential to occur in the proposed project and action areas based on habitat associations (E = endangered; T = threatened; C = candidate; P = proposed threatened).

SPECIES	CONSERVATION STATUS	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR IN THE PROJECT OR ACTION AREA
MAMMALS			
Black-footed ferret *(Mustela nigripes)*	E	Open grasslands with year-round prairie dog colonies.	No prairie dog colonies identified in the project or action area.
BIRDS			
Mexican spotted owl *(Strix occidentalis Iucida)*	T	Nests in caves, cliffs, or trees in steep-walled canyons of mixed conifer forests.	No steep-walled canyons with mixed conifer forest or designated critical habitat occur in the project or action area.

SPECIES	CONSERVATION STATUS	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR IN THE PROJECT OR ACTION AREA
Southwestern willow flycatcher *(Empidonax traillii extimus)*	E	Breeds in dense, shrubby riparian habitats, usually in close proximity to surface water or saturated soil.	The project and action area do not contain riparian habitat.
Yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	C	Breeds in riparian woodlands with dense, understory vegetation.	The project and action area do not contain riparian habitat.
Mountain plover *(Charadrius montanus)*	p	Breeds in extremely dry, level shrublands, shortgrass prairie, barren agricultural fields, and other sparsely vegetated areas.	The action area does not contain level, sparsely vegetated areas, or agricultural fields.
FISH			
Colorado pikeminnow *(Ptychocheilus lucius)*	E	Large rivers with strong currents, deep pools, and quiet backwaters.	No perennial water resources occur in the project area or vicinity.
Razorback sucker *(Xyrauchen texanus)*	E	Medium to large rivers with silty to rocky substrates. Prefers strong currents and deep pools.	No perennial water resources occur in the project area or vicinity.
PLANTS			
Knowlton's cactus *(Pediocactus knowltonii)*	E	Alluvial deposits that form rolling, gravelly hills in pifton-juniper and sagebrush communities (6,200-6,400 ft).	No alluvial deposits or gravelly soils occur in the project area or vicinity.
Mancos milkvetch *(Astragalus humillimus)*	E	Cracks of Point Lookout Sandstone of the Mesa Verde series (5,000-6,000 ft).	Project area and vicinity geology is not derived from Point Lookout Sandstone.
Mesa Verde cactus *(Sclerocactus mesae-verdae)*	T	Highly alkaline soils in sparse shale or adobe clay badlands of the Mancos and Fruitland formations (4,000-5,550 ft).	**Project area and vicinity** geology is not derived from the Mancos Shale formation

Source: USFWS 2010

BLM Special Management Species: Of the ten species warranted for special management consideration by the BLM/FFO (BLM 2008), three species, the American peregrine falcon *(Falco peregrinus anatum)*, golden eagle *(Haliaeetus leucocephalus)*, and prairie falcon *(Falco mexicanus)*, have the potential to occur within the project area. Species listed by the BLM/FFO and their potential to occur in the project or action areas are summarized in Table 2. None of these BLM special management species were observed during the field survey and their potential to occur is based on evaluation of the proposed project area and action area habitats and the known habitat associations of the listed species.

Table 2. BLMIFFO species with special management status and their potential to occur in the project and action areas based upon habitat associations.

SPECIES	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR IN PROJECT OR ACTION AREA[1]
BIRDS		
American peregrine falcon *(Falco peregrinus anatum)*	Rugged terrain with rocky cliffs and canyons (30-1,000+ ft high), adjacent to rivers, lakes, or streams. Urban areas with towers and buildings also inhabited.	Potential foraging habitat is located in the project and action areas.
Bald eagle *(Haliaeetus leucocephalus)*	Nest in forested areas adjacent to large bodies of water.	No large bodies of water occur within the project or action area.
Burrowing owl *(Athene cunicularia}*	Rarely dig their own burrows and are typically associated with prairie dog colonies. Found in dry, open, short-grass, treeless plains. Use areas that include shrubs such as fourwing saltbush and rabbitbrush. Also inhabit human-modified landscapes, such as golf courses and _Qarking lots	No prairie dog colonies or short grassland occur within the project or action area.
Ferruginous hawk *(Buteo regalis)*	Flat or rolling terrain in grasslands, shrub-steppes, deserts, or badlands. Prefers elevated nest sites (e.g., buttes, utility poles, trees and sometimes, on the ground).	Project and action areas do not contain broad expanses of flat or rolling terrain or expansive grasslands.
Golden eagle *(Aquila chrysaetos)*	In the West, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	Potential foraging habitat is located in the project and action areas.
Mountain plover *(Charadrius montanus)*	Breeds in flat, open grasslands. Often associated with prairie dog towns and intensive grazing.	No flat open grasslands occur in the project or action area.
Prairie falcon *(Falco mexicanus)*	Arid, open regions of grassland or scrub vegetation with cliff formations that are at least 30 ft high. Breeding cliffs are sometimes in semi-open regions with scattered conifer trees and occasionally dense woodlands.	Action area contains expanses of arid, open habitat suitable for foraging.
Yellow-billed cuckoo *(Coccyzus americanus)*	Breeds in riparian woodlands with dense, understory vegetation.	No riparian habitat exists in the project or action area.
PLANTS		
Aztec gilia *(Aliciella formosa)*	Salt desert scrub communities in soils of the Nacimiento Formation (5,000-6,000 ft).	The project and action area do not occur on the Nacimiento Formation; no suitable habitat occurs.
Brack's hardwall cactus *(Sclerocactus cloveriae* ssp. *brackii)*	Sandy clay of the Nacimiento Formation in sparse shadscale scrub (5,000-6,000 ft).	The project and action area do not occur on the Nacimiento Formation; no suitable habitat occurs.

[1] Bold indicates the species has potential habitat in the project or action area; Source: BLM 2008

DISCUSSION

The desert scrub and pinon- juniper communities in the action area provide excellent foraging habitat for golden eagles, peregrine falcons, and prairie falcons. Suitable nesting habitat for peregrine falcons, golden eagles and prairie falcons surrounds the proposed project area to the north, east, south and west with the closest at 1.8 miles southwest in the cliffs associated with Medina Canyon. There is no potential nesting habitat within the proposed project or action areas. The area within a five mile radius of the proposed project contains two peregrine falcon nests and six golden eagle nests. Twenty-seven additional raptor nests occur within 10 miles of the proposed project area (BLM 2009, unpublished data). The proposed project area could be within the hunting and home range territories of peregrine falcon, golden eagle, and prairie falcon nesting pairs. Enderson and Craig (1997) estimated peregrine home ranges in Colorado of222 to 937 square miles Average hunting territory size for golden eagles was found to be 19 to 59 square miles in California and 25 to 35 square miles in Utah (Weidensaul, 1996). Average home range sizes for prairie falcons were found to be approximately 142 square miles in northern California and approximately 47 square miles in Wyoming (Haak 1982; Squires et al. 1993). Given the distance of known territories and suitable nesting habitat from the proposed location and the possibility of yet undocumented territories, it is possible that these raptor species may forage in the proximity or fly through the proposed project and action areas. Direct impacts to peregrine falcons, golden eagles, and prairie falcons as a result of the proposed project would include removal and modification of approximately 3.2 acres of potential foraging habitat. Approximately 1 acre of foraging habitat would be removed for the long-term operation of the project. Six small stature trees would be removed with the proposed action. Additional impacts to raptors may include avoidance of the project area during construction, drilling, and operation due to disturbance and activity from human and vehicle presence. Indirect impacts may include a short-term change in vegetation species composition and density due to surface disturbance and reclamation, which could affect the prey base for raptor species. Impacts are expected to be low and long-term.

Because the proposed project is located on undisturbed terrain, removal of shrubs would result in a loss of habitat for a variety of shrub-nesting birds protected under the Migratory Bird Treaty Act (MBTA). Avian conservation plans, including the US Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC) 2008 Report (USFWS 2008) and the New Mexico Partners in Flight (NMPIF) New Mexico Bird Conservation Plan (NMPIF 2007), identify species at greater conservation risk based on moderate to severe threats to the species or their habitats and unknown or declining local population trends. Several birds included on both the BCC list and included as "conservation priority species" by NMPIF that may utilize the proposed project area include gray vireo *(Empidonax wrightii)* and Bendire's thrasher *(Toxostoma bendirei)*. Other NMPIF priority species·which may utilize the proposed project area include golden eagle and prairie falcon. No birds from either the NMPIF priority or the BCC list were observed during the June 30, 2010 field investigation. Direct impacts to these species are expected to be greater if construction and drilling occurs during the breeding season from April to August when nest destruction is possible. Additionally, noise and human disturbance may cause some nest abandonment in adjacent areas during this time frame.

The proposed project would have short-term impacts to big game due to increased traffic, human activity, and noise levels during construction and drilling. Low, long-term impacts to big game include vegetation loss and increased habitat fragmentation post-construction of the proposed

project. Big game would most likely temporarily avoid the area during the operation of the proposed action due to periodic noise or traffic. The proposed project would remove approximately 3.2 acres of undisturbed vegetation resulting in a minor loss of big game foraging habitat.

CERTIFICATION

Conclusions are based on actual field examination and are correct to the best of my knowledge.

Signature of Field Biologist: _____ Date: 8/27/10

Heidi Hansen, Wildlife Biologist
Ecosphere Environmental Services
776 E. 2"d Ave.
Durango, CO 81301
(970) 382-7256

LITERATURE CITED AND REFERENCES

Bureau of Land Management (BLM). 2008. Special status species management. Instruction Memorandum No. IM-NM 200-2008-01. Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management (BLM). 2003. Farmington proposed resource management plan and final environmental impact statement. Bureau of Land Management, Farmington Field Office, Farmington, NM.

Bureau of Land Management. 1998. Endangered, threatened and sensitive plant field guide. Bureau of Land Management, Albuquerque, NM and Ecosphere Environmental Services, Farmington, NM.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The birder's handbook. Simon & Schuster Inc., New York, NY.

Enderson, J. H. and G. R. Craig. 1997. Wide ranging by nesting Peregrine Falcons *(Falco peregrinus)* determined by radiotelemetry. Journal ofRaptor Research 31:333-338.

Fisher, C., D. Pattie, and T. Hartson. 2000. Mammals of the Rocky Mountains. Lone Pine Publishing, Vancouver, BC.

Haak, B. A. 1982. Foraging ecology of Prairie Falcons in northern California. Master's thesis, Oregon State Univ., Corvallis.

Hughes, *1*.M. 1999. Yellow-billed Cuckoo (*Coccyzus americanus)*. *In* The birds ofNorth America, no. 418 (A. Poole and F. Gill, eds.). The Birds ofNorth America, Inc., Philadelphia, PA.

Manley, K., G.R. Scott, and R.A. Wobus. 1987. Geological map of the Aztec 1° x 2° Quadrangle, northwestern New Mexico and southern Colorado. 1:250,000.

Kochert, M.N., K. Steenhoff, C.L. Mcintyre, and E.H. Craig. 2002. Golden Eagle *(Aquila chrysaetos)*. *In* The birds ofNorth America, no. 684 (A. Poole and F. Gill, eds.). The Birds ofNorth America, Inc., Philadelphia, PA.

New Mexico Partners in Flight (NMPIF). 2007. New Mexico Bird Conservation Plan Version 2.1. C. Rustay and S. Norris, compilers. Albuquerque, New Mexico.

New Mexico Rare Plant Technical Council. 2002. New Mexico rare plants homepage. Version 15. New Mexico Rare Plants Technical Council, Albuquerque, NM. Available at http://nmrareplants.unm.edu.

Sawyer, H., R.M. Nielson, F. Lindzey, and L.L. McDonald. 2006. Winter Habitat Selection of *Mule* Deer Before and During Development of a Natural Gas Field. Journal of Wildlife Management. 70(2):396-403.

Squires, J.R., S.H. Anderson, and R. Oakleaf. 1993. Home Range Size and Habitat-Use Patterns of Nesting Prairie Falcons Near Oil Developments in Northeastern Wyoming. Journal of Field Ornithology 64:1-10.

Tidwell, W.D. 1972. Physiography of the intermountain region. pp. 10-18 *In* Cronquist, A., A.H. Holmgren, N.H. Holmgren and J.L. Reveal. Intermountain flora. Volume 1. Hafner Publishing Co., New York, NY.

U.S. Department of Agriculture Forest Service (USDA FS). 2009. Fire Effects Information System. Index of Species Information. Available online at: www.fs.fed.us/database/feis

U.S. Department of Interior, U.S. Department of Agriculture (USDIIUSDA). 2007. Natural Resources Conservation Service. Rio Arriba, New Mexico, Parts ofRio Arriba and Sandoval Counties. Available at http://websoilsurvey.nrcs.usda.gov/app/WebSoiiSurvey.aspx

U.S. Fish and Wildlife Service (USFWS). 2009. Endangered species lists. U.S. Fish and Wildlife Service, Southwest Region Ecological Services. Available at http://www.fws.gov/southwest/es/EndangeredSpeciesllists/.

U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern. U.S. Fish and Wildlife Service, Division of Migratory Bird Management. Arlington, West Virginia. Available online: http://migratorybirds.fws.gov/reports/bcc2002.pdf

U.S. Fish and Wildlife Service (USFWS). 2002. Southwestern willow flycatcher recovery plan. U.S. Fish and Wildlife Service, Albuquerque, NM.

U.S. Fish and Wildlife Service (USFWS). 1998. Black-footed ferret *(Mustela nigripes)* fact sheet. U.S. Fish and Wildlife Service. Available at http://endangered.fws.gov/i/A07.html.

U.S. Fish and Wildlife Service (USFWS). 1995. Recovery plan for the Mexican spotted owl. Volume I. U.S. Fish and Wildlife Service, Albuquerque, NM.

U.S. Geological Survey (USGS). 2004. National Gap Analysis Program. Southwest Regional GAP Analysis Project— Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University.

Weidensaul, Scott. 1996. The Raptor Almanac. The Lyons Press, Hong Kong, China.

Wheeler, B.K. 2003. Raptors of Western North America. Princeton University Press, Princeton, NJ.

ATTACHMENT A. PROJECT PLATS

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State of New Mexico
Energy, Minerals & Natural Resources Department

On. CONSERVATION DMSION
1220 South 9l. Franct. Dr.
S&Du Fe, NW 87&05

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Rni.e4 October 22, 2006

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O AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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10 Surface Location

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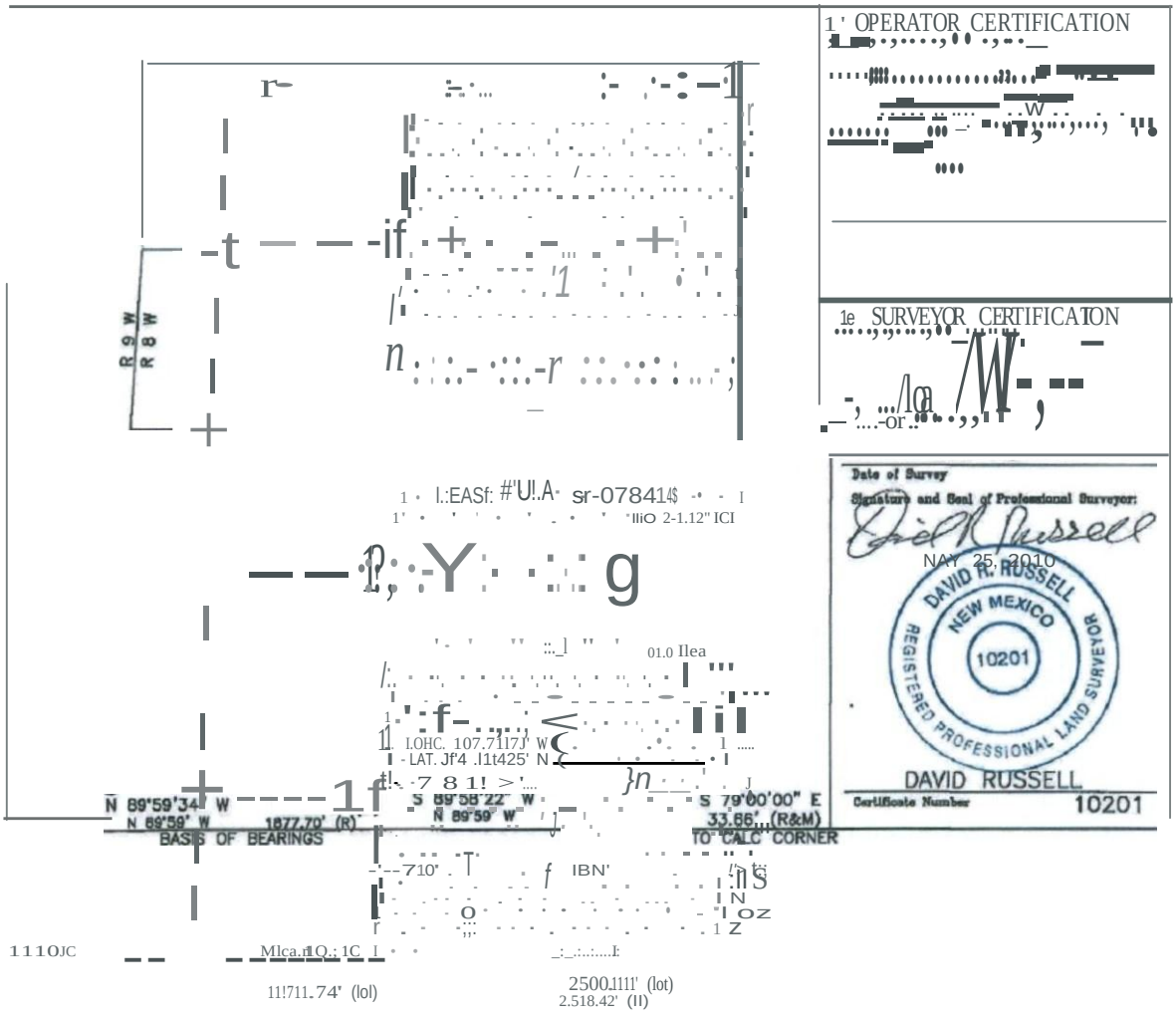

WELL FLAG

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LONGITUDE:107.71373" W
CENTER OF PIT
LATITUDE 36 72010° N
LONGITUDE: 107 71360"W
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DATUM. NAD83 & NAVD88

CONOCOPHIUIPS COMPANY

DAY#SN
710' FSL & 1886' FEL
LOCATED IN THE SW/4 SE/4 OF SECTION 18,
T29N. R8W, N M PM,
SAN JUAN COUNTY, NEW MEXICO
GROUND ELEVATION: 6513', NAVO 88
FINISHED PAD ELEVATION 65110', NAVD 88

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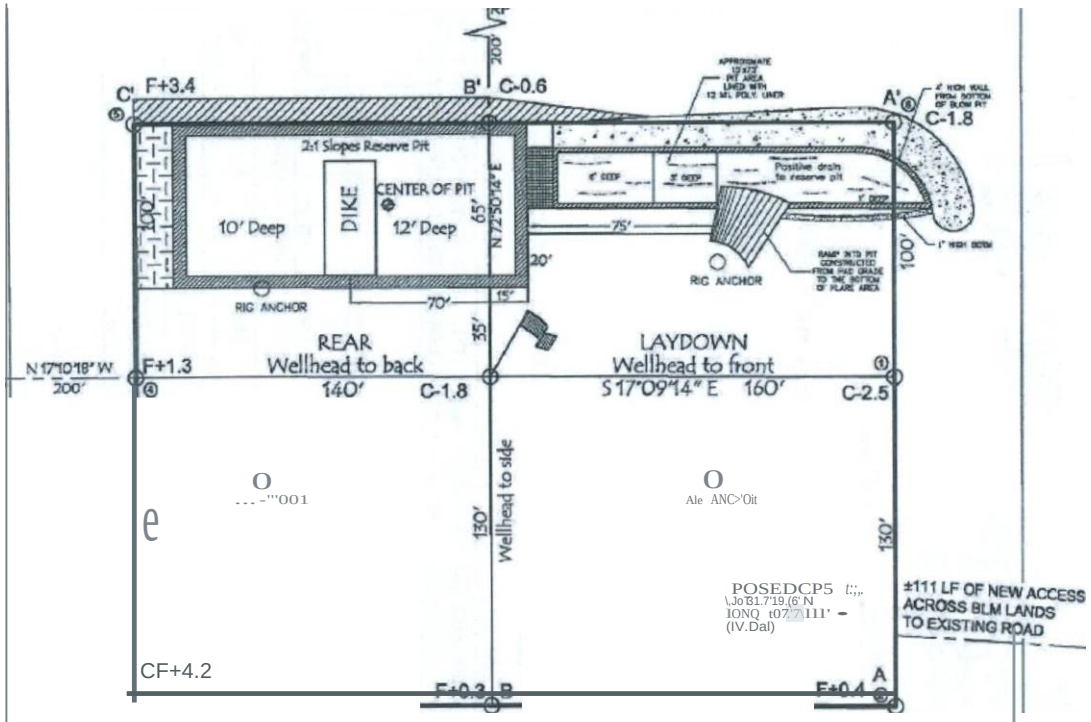

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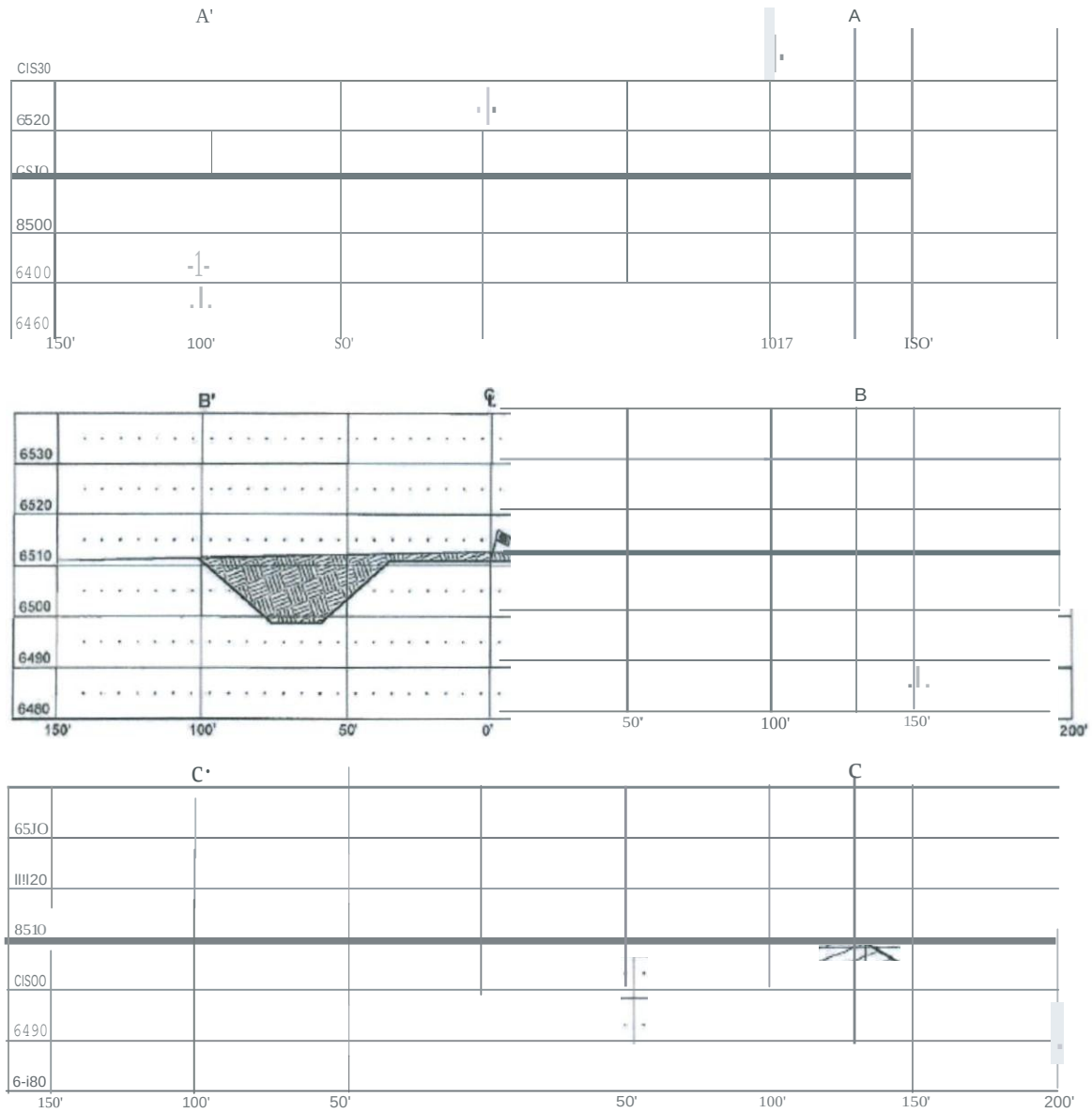
Russell Surveying
1409 W.Aztec Blvd.f2
AztK, Ne-..llex.lco 17410
(505) 334-8637

WELL FLAG LATITUDE:
36.71991° N LONGITUDE:
107.71373• W DATUM:
NAD83

CONOCOPHILLIPS COMPANY
DAY#SN
710' FSL & 1886' FEL
LOCATED IN THE SW/4 SE/4 OF SECTION 18,
T29N, R8W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO
GROUND ELEVATION: 6513', NAVD 88
FINISHED PAD ELEVATION: 6511.0', NAVD 88



THIS OIAGRAIA IS AN ESTWATE OF D.RT BALANCE AND IS NOT INTENDED TO liE AN EXACT t.I:E OF VOLUNE

VERT. SCALf: f''' 30'
HORZ. SCALE: 1'' • 50'
JOBNo.: COPCIM
OATE: Dt!/08110

CUT

FILL

Russell Surveying
14011 W, Aztec Blvd.l2
Aztec,New Mexrco 87410
(606) 334-8837

E=SC

ENTERPRISE FJELD SERVICES, LLC

— – – "B"'L"A"-N"-'C O:c_____ GATHERING SYSTEM

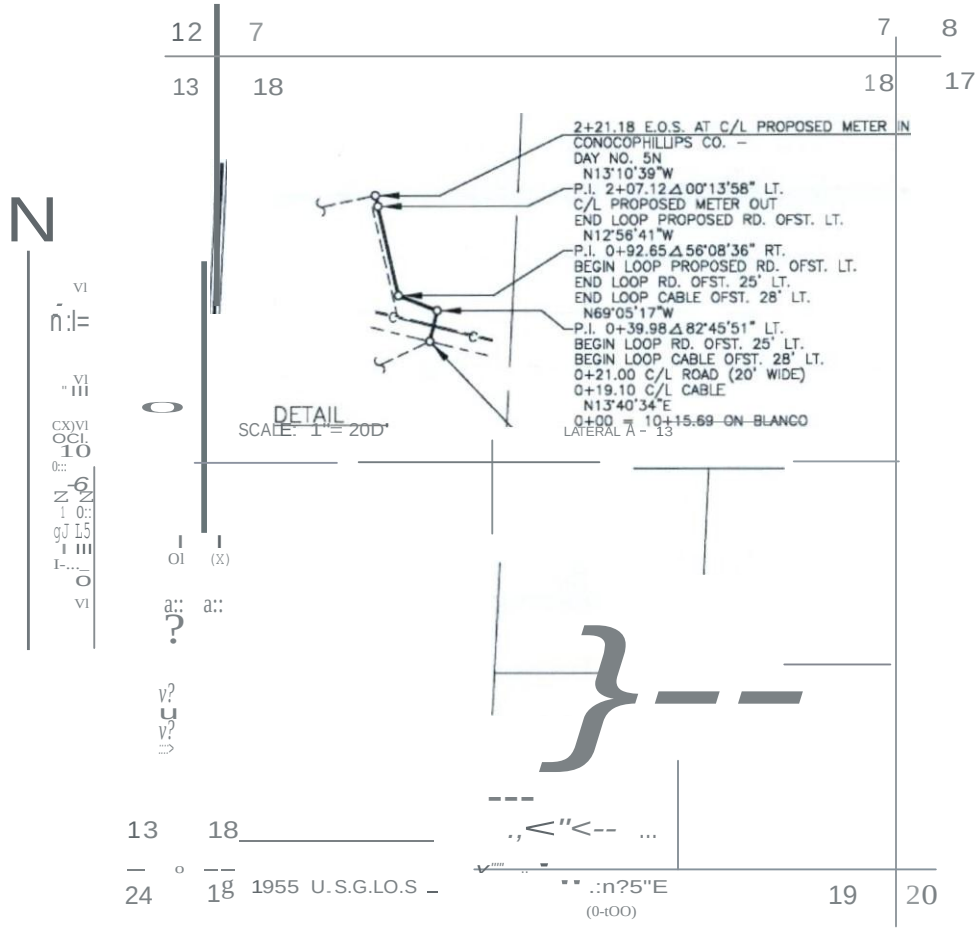
LINE CONOCOPHILLIPS CO. – DAY NO. 5N

FROM 0+00 = 10+15.69 ON BLANCO LATERAL A-13

(013A731.00-0001)

owe. NO. BLA013-028Q
W0 NO. _____
RW NO. 1070073
DATE 07/07/10
SCALE 1" = 1000'
SUR\IEYED 06/28/10
RANCE 08-W, N.M.P.M

COUNIY SAN JUAN STATE NEW MEXICO SECTON...18 TOWNSHIP...2...9... -...N. RANCE



OWN. BY LB CONSTR. COMMEIIICEO APPL. DWG. SLACK CHA.N

CKD. BY MD CONSTR. COMPLETED DATE PIPE SIZE 4.50' O.D.

PRINT RECORD PIPE DATA tAETER STA. NO. MV/DK

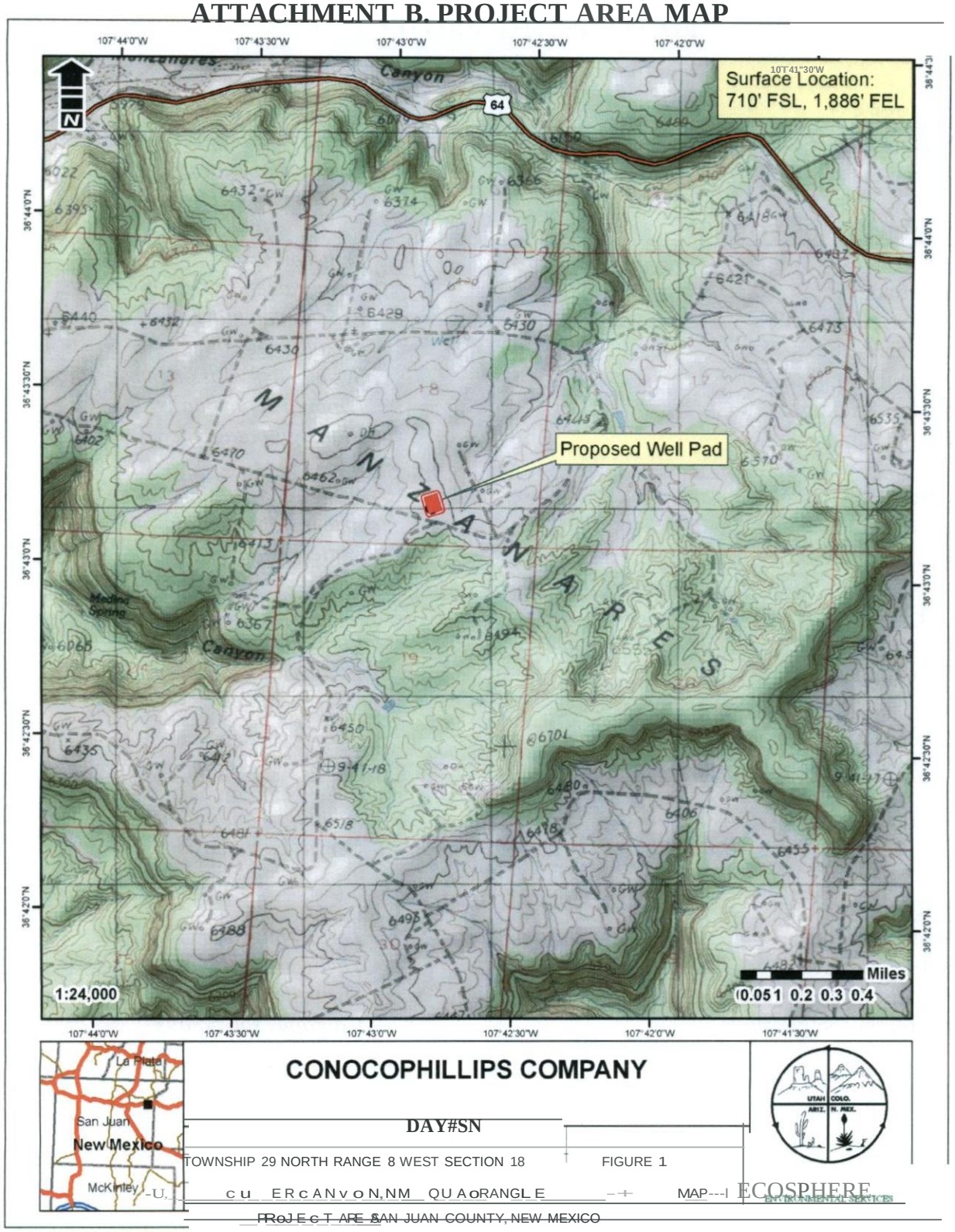
11

NOTE: WELL FLAG
SURVEY LOOPS PROPOSED ROAD
LOCATION NOT BUILT

SURFACE LOCATION: 71D' FSL, 1886' FEL

SUBDIVISION	OWNER	LESSEE	METER(S)	RODS	ACRE(S)
ALL SEC. 18	UNITED STATES	WILLAM L. NOBLES (ESTATE)		13.405	0.203

ATTACHMENT B. PROJECT AREA MAP



ATTACHMENT C. PLANTS AND ANIMALS FOUND IN THE PROJECT AREA

GRASSES	
cheatgrass	*Bromus tectorum*
squirreltail	*Elymus elymoides*
HERBACEOUS FORBS	
daisy	*Erigeron* spp.
globemallow	*Sphaeralcea* spp.
redstem stork's bill	*Erodium cicutarium*
Russian thistle	*Sa/sola tragus*
tall tumblemustard	*Sysimbrium altissimum*
Western sticktight	*Lappula occidentalis*
woolly plantain	*Plantago patagonica*
SHRUBS	
big sagebrush	*Artemisia tridentata*
broom snakeweed	*Gutierrezia sarothrae*
TREES	
pinon pine	*Pinus edulis*
Utah juniper	*Juniperus osteosperma*
MAMMALS	
black-tailed jackrabbit	*Lepus californicus*
cow	*Bos taurus*
desert cottontail	*Sylvilagus audubonii*
elk	*Cervus canadensis*
BIRDS	
American robin	*Turdus migratorius*
violet-green swallow	*Tachycineta thalassina*
Western meadowlark	*Sturnella neglecta*
Western wood pewee	*Contopus sordidulus*