United States Department of the Interior
Bureau of Land Management
Las Cruces District Office
1800 Marquess
Las Cruces, NM 88005

ENVIRONMENTAL ASSESSMENT for YSLETANO CANYON FEDERAL #4

 # DOI-BLM-NM-L000-2012-0014-EA

Prepared By: /s/ Joseph Navarro _Environmental Protection Specialist__ **Date**: 5/29/13
Name and Title

Reviewed By: /s/ Jennifer Montoya Planning & Environmental Specialist **Date**: 5/29/13
Name and Title

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005

Project: Ysletano Canyon Federal #4
Location: 330' FSL & 330' FEL
Section 7, T. 14 S., R. 11 E.
Applicant: Jalapeño Corporation

NEPA #: DOI-BLM-NM-L000-2012-0014-EA
Lease Number: NM-038313
File Code:
Las Cruces District Office: (575) 525-4300

Finding of No Significant Impact

Based on the analysis of potential environmental impacts and mitigation measures contained in the attached environmental assessment (EA), I have determined the proposed action is not expected to have significant impacts on the environment and that preparation of an Environmental Impact Statement is not warranted.

Decision Record

Based upon the analysis, Alternative B is approved. This includes construction of a 300’ x 300’ well pad (2.07 acres) within a 600' x 600' area of analysis centered on the footages of the center hole. A new access road 30' wide x 3,718' long (2.6 acres) aggregating a total of 4.7 acres of new surface disturbance for the project. The road will have a driving surface of 14' wide, located in Township 14 South, Range 11 East, Section 7, SE¼.

Rationale: The Bureau of Land Management staff has reviewed the EA and identified site-specific mitigation measures to avoid or minimize surface impacts from this project. The well pad will remain as a long-term impact. Cumulative impacts to the environment from existing and new development have been identified.

The proposed action is in conformance with the 1986 White Sands RMP, as amended, and conforms to the land-use planning terms and conditions required under 43 CFR 1610.5. This action does not conflict with existing Otero County land-use planning or zoning.

Administrative Review and Appeal: Under BLM regulations, this Decision Record (DR) is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this DR must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, 301 Dinosaur Trail, Santa Fe, NM 87508, no later than 20 business days after this DR is received or considered to have been received.

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

Prepared by:

/s/ ` Date

Joseph M. Navarro
Environmental Protection Specialist

Approved by:

/s/ Date

David Wallace
Assistant District Manager Division of Multi-Resources

BUREAU OF LAND MANAGEMENT
LAS CRUCES DISTRICT FIELD OFFICE
ENVIRONMENTAL ASSESSMENT # DOI-BLM-NM-L000-2012-0014-EA FOR
Ysletano Canyon Federal #4

1 INTRODUCTION

The following company submitted on September 4th, 2011, an Application for Permit to Drill to the Las Cruces District Office (LCDO) for the following well respectively:

Jalapeño Corporation
P.O. Box 1608
Albuquerque, NM 87103

Ysletano Canyon Fed #4
Surface: 330' FSL & 330' FEL,
Bottom Hole: 330' FSL & 330' FEL
Proposed Well Depth-1800 Ft.
Section 7, T. 14 S., R. 11 E.
NMPM, Otero County

This site-specific analysis tiers into and incorporates by reference the information and analysis contained in the 1986 White Sands Resource Management Plan (RMP) Record of Decision (ROD) for minerals and leasing development. This document is available for review at the Las Cruces District Office. This project EA addresses site-specific resources and/or impacts that are not specifically covered within the RMP, as required by the National Environmental Policy Act of 1969 (NEPA), as amended (Public Law 91-90, 42 U.S.C. 4321 et seq.).

1.1 Purpose And Need

The purpose is to approve an Application for Permit to Drill (APD). The need for this action is found in BLM policy which is 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 (MLA), as amended [30 USC 181 et seq.], authorizes BLM to issue oil and gas leases for exploration of oil and gas, and permit the development of those leases. This environmental assessment will analyze the impacts of drilling this well and alternatives.

An approved APD, issued by the BLM, would authorize the applicant to construct an on lease road, pad and drill the well and if so, under what terms and conditions.

1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments

The proposed project would not conflict with any local, county, or State plans. The proposed well is in conformance with the White Sands RMP ROD, signed September 1986. It is located in an area identified in that document as open to oil and gas leasing and is within a Federal lease that was previously issued under that RMP. The proposed well and the associated infrastructure fall within the reasonable foreseeable development scenario.

1.3 Relationships to Statutes, Regulations, or Other Plans

This Environmental Assessment also conforms to the requirements of the Clean Water Act (33 USC 1251 et seq.), National Historic Preservation Act (16 USC 470 et seq.), the Endangered Species Act, as amended (16 USC 1531 et seq.), the Clean Air Act (42 USC 7401 et seq.), and the Energy Policy Act of 2005 (Public Law 109-58, 119 STAT. 594).

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

Additionally, the Operator is required to:

- Use a steel tank closed-loop circulation system per state of New Mexico regulation NMAC 19.15.1.21(B) by the New Mexico Oil Conservation Division. This order has not been adopted by the Federal Authorized Officer as a directive under the Mineral Leasing Act and 43 CFR 3162.1. Therefore this EA will analyze an alternative that allows Jalapeño Corporation to use a lined earthen reserve pit, and one that analyzes the use of a lined earthen reserve pit with a steel tank reserve system.

- Comply with all applicable Federal, State and local laws and regulations.

- A U.S. Army Corps of Engineers Section 404 permit for any discharge of dredge and fill materials may also be required. A New Mexico Surface Water Quality Bureau 401 certification may also be required under a U.S. Army COE Section 404 permit. Operators are required to obtain all necessary permits and approvals prior to any disturbance activities.

- Obtain the necessary permits for drilling, completion and production of the well, including water rights appropriations, installation of water management facilities, water discharge permits, and relevant air quality permits.

- Implementation of BLM-The Gold Book (2007)-Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development.

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Alternative A – No Action

The BLM NEPA Handbook (H-1790-1) and the National Environmental Policy Act and associated Code of Federal Regulations state that for Environmental Assessments as on externally initiated proposed actions, the No Action Alternative means that the proposed activity would not take place. The No Action Alternative is presented for baseline analysis of resource impacts, and if selected, would deny the approval of the proposed application. 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 (refer to Exhibit A)

Jalapeño Corporation has submitted an Application for Permit to Drill (APD) and associated infrastructure (Table 1).

Table 1 Proposed Well Information submitted by Jalapeño Corporation.

Well Name	Number	Township	Range	Section	Lease Number	Issued
Ysletano Canyon Fed.	4	14S	11E	07,all	NMNM38313	02/19/1980

County: Otero
Applicant: Jalapeño Corporation
Surface Owner: Mary Lou Beaty
Subsurface Mineral Estate Owner: Bureau of Land Management

Detailed descriptions of design features and construction practices associated with the Proposed Action are contained in the APD and available for review in the Las Cruces District Office. The Proposed Action involves the development for the project, including the following:

In order to drill the Ysletano Canyon Federal #4, Jalapeño Corporation proposes to construct a 300' long X 300' wide well pad (2.07 acres) on private land. In order to build a flat location, the surface area inside the corner stakes would need to be leveled. This would require cut and fill using a bulldozer or some other type of earth moving equipment. The well pad will be located within a 600' by 600' area (8.3 acres) to be surveyed for the presence of cultural resources.

In order to gain access into the location, an on-lease road would be constructed on private land, the road would be approximately 3,718 feet in length and 30 feet in width and would comprise of approximately 2.56 acres. A portion of the proposed access road on public land would be crossed at T. 14 S., R. 10 E., sec. 12, that would be approximately 2,640 feet in length (½ mile) and 14 feet in width, comprising of approximately 0.85 acres. The roadway would be crowned and ditched according to BLM specifications. The applicant would utilize all other existing access roads to access the lease site. The existing roads would be maintained in a good or better condition than those existing at commencement of operations. The total disturbance for the proposed access road would be 3.41 acres.

Jalapeño Corporation submitted to LCDO, Surface Access and Compensation Agreement with Mary Lou Beaty dated April 1st 2012. Access over private property has been granted by the private surface owner. No other private surface land owners will be impacted.

The well would be drilled using a closed loop system. This closed loop system would be constructed, maintained, and closed in accordance with rules and regulations from the State of New Mexico, Energy and Natural Resource Department, and the Oil Conservation Division (Pit Rule 19.15.17 NMAC).

Topsoil would be stockpiled in shallow rows adjacent to the constructed well pad within the area surveyed for cultural resources. Topsoil is to be used for interim and final reclamation of this constructed pad and is not to be used as materials for earthen berms which would be used to surround the pad. No earthen berms would be constructed on public surface.

2.3 Alternative C-Preferred Alternative

As a result of an on-site inspection, the BLM proposes the following changes to the proposed action:

The proposed action would remain the same, however the proposed road "Road B" which runs west to access the county road **(See exhibit B),** from the location for 3,718 ft., would not be constructed unless the well is completed as a producer. Rigs and related equipment, as well as vehicles necessary for this well's completion therefore should travel along present "Road A", **(See Exhibit A).** The applicant would apply for a BLM road right-of-way for the portion of the road that crosses public land.

3 DESCRIPTION OF AFFECTED ENVIRONMENT

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Certain environmental components require analysis under BLM policy. Only the aspects of the affected environment that are potentially impacted are described.

3.1 Air Resources (Air Quality and Climate)

Air quality and climate are the components of air resources, which include applications, activities, and management of the air resource. The BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as part of the decision making process. Much of the information referenced in this section is incorporated from the *Air Quality Technical Report for BLM Oil and gas development in New Mexico, Oklahoma, Texas and Kansas* (herein referred to as Air Quality Technical Report). This document summarizes the technical information related to air resources associated with oil and gas development.

3.1.1 Air Quality

The area of the proposed action is considered a Class II 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 proposed well is generally good and is not located in any of the areas designated by the Environmental Protection Agency as "non-attainment areas" for any listed pollutants regulated by the Clean Air Act. This area is also in attainment for all state air quality standards (NMAQS). The primary source of air degradation is PM_{10} (dust) generated off-site during high wind events which are fairly common in southern New Mexico, especially during the spring months. In addition, the Air Quality technical report describes the types of data used for description of the existing conditions of criteria pollutants are related to activities involved in oil and gas development, and provides a table of current National and State standards.

Greenhouse gases, including carbon dioxide (CO_2) and methane (CH_4), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The EPA's Inventory of US Greenhouse Gas Emissions and Sinks found that in 2006, total US GHG emissions were over 6 billion metric tons and that total US GHG emissions have increased by 14.1% from 1990 to 2006. The report

also noted that GHG emissions fell by 1.5% from 2005 to 2006. This decrease was, in part, attributed to the increased use of natural gas and other alternatives to burning coal in electric power generation. While total U.S. emissions have increased by 7.3 % from 1990 to 2009, these have decreased from 2008 to 2009 by 6.1 %. This decrease is attributed to: (1) a decrease in economic output resulting in a decrease in energy consumption across all sectors; and (2) a decrease in carbon intensity of fuel used to generate electricity due to switching as the price of coal increases and that of natural gas decreases significantly (U.S. Environmental Protection Agency, 2011).

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.

3.1.2 Climate

On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO_2) methane (CH_4); nitrous oxide (NO); water vapor; and several trace gasses on global climate. Through complex interactions on a global scale, GHG emissions 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.

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 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. 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 is 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: 1) 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 lease parcels 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.

The project area is located in an arid to semi-arid climate regime typified by dry windy conditions and limited rainfall. Summer maximum temperatures are generally in the 90s and low 100s (Fahrenheit) and winter minimum temperatures are generally in the 20s or 30s. Temperatures have reached above 100^0 F in every month from May to September and have occasionally dipped below zero in December, January and February. Precipitation is divided between summer thunderstorms associated with the Southwest Monsoon and winter rain and snowfall as Pacific weather systems drop south into New Mexico.

3.2 Cultural Resources

The Tularosa Valley has been inhabited for at least 12,000 years, and prehistoric archaeological remains here are included within the Jornada Mogollon cultural region (U.S. Army 2000). This immense span of prehistory is subdivided into three traditions: Paleo-Indian (ca. 10,000-6000 B.C.), Archaic (ca. 6000 B.C.-A.D. 250) and Formative (ca. A.D. 250-1475). This sequence marks the local development of human societies from highly mobile, hunting-and-gathering peoples who lived in small-scale, informal societies, to farmers who constructed adobe pueblos, maintained more complex societies, and participated in long-distance exchange networks. Following the abandonment of the Tularosa Valley by Formative tradition peoples, nomadic groups re-occupied the area, most significantly the Mescalero Apache, who were present in the area by the seventeenth century, and horse-mounted Comanche, who ranged throughout the area from the 1700s until the mid-nineteenth century (Railey and Holmes 2002:17–67).

The Euro-American history of the region began with the arrival of Spanish explorers in the sixteenth century, although the earliest explorers tended to bypass the Tularosa Valley, traveling along the Rio Grande to the west and the Pecos River to the east. The Spanish began exploiting the natural salt resources in the Tularosa Valley in the 1600s, but the area north of El Paso remained unsettled by Euro-Americans until the late nineteenth century, in part because of threats from the Mescalero Apache and Comanche. Once the threat of raiding had subsided, ranching quickly expanded into the Tularosa Valley, and the 1880s saw a cattle boom. Mining activity also began to flourish in the area in the late nineteenth century, and irrigation-based farms sprang up along the eastern margin of the valley. With the construction of the El Paso and Northeastern Railroad in 1897-1898, economic development and population growth increased rapidly, and the City of Alamogordo was founded. In the twentieth century, ranching activities diminished as the environment was degraded by over-grazing, and mining activities dissipated as mineral resources played out or failed to deliver on initial production promises and hopes. During this same century, the expansion of the Fort Bliss Military Reservation and establishment of the WSMR refocused much of Alamogordo's economy on military-related activities and support services, and these remain important economic sources in the area (Railey and Holmes 2002: 67-78).

A cultural resource inventory shall be conducted by the proponent and results forwarded to our archaeological staff of this area of effect for the proposed project prior to any ground disturbing activities.

3.3 Native American Religious Concerns

A traditional cultural property (TCP) as defined in national register Bulletin 38: *"…can be defined generally as one 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."*

A sacred site as defined by executive order No. 13007: *"…means any specific, discrete, narrowly delineated location of Federal land that is identified by an Indian tribe, or Indian individual determined to be appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, and Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."*

In order for the BLM to determine the potential effects of the proposed action on traditional cultural properties or sacred sites, the specific locations of these resources as well as information about their relationship to practices or beliefs of a living community must be identified. The BLM must also have the specific, delineated location of a sacred site to avoid adversely affecting the physical integrity of a sacred site at the location specified.

This project was posted at our LCDO office for 30 days in November 4, 2011. No comments were received from this posting. Formal tribal consultation for this project has yet to be done. However further scoping will be conducted and comments addressed upon completion of this Environmental Assessment.

Should specific locations and knowledge regarding TCP sacred sites be forthcoming, BLM would keep such information confidential where it is appropriate and has been requested to do so by the Native American entity. Where specific sacred site locations and their associations are identified, BLM would, in consultation with the interested Native American entity, work to make changes necessary to accommodate access and ceremonial use of the location and make the changes necessary to avoid adverse effect to the physical integrity of the sacred site location. Where information has been provided concerning a TCP, BLM would evaluate or cause to have evaluated the information provided to determine if it is a historic property and eligible for inclusion on the National Register of Historic Places.

3.4 Environmental Justice

Executive Order 12898 requires Federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety impacts on minority and low-income populations. This resource topic refers specifically to the demographic and economic characteristics of the human population that could experience adverse effects from implementation of the proposed project which includes the residents of Tularosa, Alamogordo and surrounding areas of Otero County. Three environmental justice parameters were represented on EPA maps for the 1990 and 2000 U.S. Censuses in Otero County:

- Economic Status-Degree of Vulnerability (DVECO)
- Minority Status-Degree of Vulnerability (DVMAV)

- Potential Environmental Justice Index (EJ Index)- derived from the formula that multiplies the DVECO, DVMAV and the total population ranking (PF) in this survey area.

The EJ Index is used as a demographic correlation variable to measure sociological equity for project permitting. This information given in the EPA environmental justice report does not represent the final analysis of a site with regard to environmental justice. Rather, the indices and raw data reported are indicators of vulnerability for subgroups of people to other stressors (EPA 2005b).

Table 2 Environmental Justice Value and Population Vulnerability.

Alamogordo Survey Sites	EJ Index Value		Population Vulnerability	Comments
	1990	2000		
Site 1	1	2	Low	Includes the northwest side of the city of Alamogordo
Site 2	3	2	Low	Includes the Village of Tularosa
Site 3	6	2	Low	Includes the village of Tularosa-significant decrease in percentage of economically stressed individuals between census years contributed to drop in EJ Index value
Site 4	1	1	Low	Significant drop in total population in this survey area, from 55 in 1990 down to 10 in 2000
Site 5	1	4	Low	Total EJ value in the survey area is extremely low (12 in 1990, down to 5 in 2000); 50 percent were economically stressed in 2000, which contributed to the higher EJ Index value; also, project features in this survey grid are completely within federal and state land ownership, with no private residents in the immediate vicinity

Note: 2000 US Census, based on a 50-square mile survey area

3.5 Invasive, Non-Native Species

Invasive and non-invasive weed species known to occur in Otero County and vicinity of the proposed access road and well pad are African rue *(Peganum harmala)*, hoary cress *(Cardaria draba)*, leafy spurge *(Euphorbia esula*), malta star thistle *(Centaurea melitensis)*, musk thistle *(Carduus nutans)*, Russian knapweed *(Acroptilon repens)*, diffuse knapweed *(Centaurea diffusa)*, yellow toadflax *(Linaria vulgaris)*, yellow star-thistle *(Centaurea solstitialis)*, dalmation toadflax *(Linaria dalmatica*), spotted knapweed *(Centaurea maculosa)*, purple loosestrife *(Lythrum salicaria)*, purple star-thistle *(Centaurea calcitrapa)*, camelthorn *(Alhagi pseudalhagi)*, scotch thistle *(Onopordum acanthium)*, Canada thistle *(Cirsium arvense)*, teasel *(Dipsacus fullonum)*, perennial pepperweed *(Lepidium latifolium)*, halogeton *(Halogeton glomeratus)* and salt cedar *(Tamarix* spp.).

Infestations of noxious weeds can have a disastrous impact on biodiversity and natural ecosystems. Noxious weeds affect native plant species by out-competing native vegetation for light, water and soil nutrients. Noxious weeds cause estimated losses to producers $2 to $3 billion annually. These losses are attributed to: (1) decreased quality of agricultural products due to high levels of competition from noxious weeds; (2) decreased quantity of agricultural products due to noxious weed infestations; and (3) costs to control and/or prevent the noxious weeds.

3.6 Wildlife and Wildlife Habitat

The BLM conducted an inventory of wildlife habitats on this allotment using the Integrated Habitat Inventory and Classification System (IHICS) in 1982. Standard Habitat Sites (SHS) occurring in the allotments as of 1982 are:

- Mesquite Rolling Upland
- Grass Flat
- Grass Rolling Upland
- Mixed Shrub Rolling Upland
- Creosote Rolling Upland
- Mixed Shrub Mountain
- Piñon-Juniper/Grass Mountain
- Arroyo

Standard Habitat Site descriptions can be found starting on page 3-21 of the White Sands Resource Area Draft Resource Management Plan/Environmental Impact Statement (1986).

3.7 Special Status Species

3.7.1 Special Status Plants

Presence of special status plant species and their habitats in Otero County was considered using LCDO species occurrence/habitat records and New Mexico Natural Heritage Program species records. Species descriptions and distributions were derived from LCDO office records and New Mexico Rare Plant Technical Council [NMRPTC. 1999. New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page. http://nmrareplants.unm.edu (Latest update: 18 January 2006)]. Based on evaluation of the above information, of the 40 special status plant species known to occur in Otero County, nine species and/or habitats could occur in the affected allotments and are listed in Table 1. There are no known occurrences of special status plants on the specific allotments under analysis for permit renewal.

Table 3 Special Status Plant Species expected in the allotments

Species	Status
Wright's marsh thistle	State Endangered, USFWS Species of Concern
Villard pincushion cactus	State Endangered, BLM Special Status, USFWS Species of Concern
Mescalero pennyroyal	State Species of Concern
Arizona coralroot	State Endangered, BLM Special Status, USFWS Species of Concern
Hairy muhly	State and USFWS Species of Concern
Cliff nama	State and USFWS Species of Concern
Alamo beardtongue	BLM Special Status, State and USFWS Species of Concern
New Mexico rock daisy	BLM Special Status, State and USFWS Species of Concern
Gray sibara	BLM Special Status, State and USFWS Species of Concern

Wright's marsh thistle *(Cirsium wrightii)* This biennial to perennial forb grows in wet, alkaline soil in spring seeps from 3,450 to 8,500 feet elevation. There is potential habitat for this plant in the area, but not at the proposed well site.

Villard pincushion cactus *(Escobaria villardii)* This small cactus grows in loamy soil in desert grass/shrub types on limestone benches from 4,500 to 6,500 feet elevation. There is potential habitat for this plant in the area.

Mescalero pennyroyal *(Hedeoma pulcherrimum)* This perennial forb grows on steep hillsides in piñon-juniper and conifer forests from 5,000 to 9,000 feet elevation. There is potential habitat for this plant in the area, but not at the proposed well site.

Arizona coralroot *(Hexalectris spicata* variety *arizonica)* This orchid grows in heavy leaf litter in oak, pine, or juniper woodlands over limestone. There is potential habitat for this plant in the area, but not at the proposed well site.

Hairy muhly *(Muhlenbergia villiflora* variety *villosa)* This rhizomatous perennial grass grows in open desert grassland in alkaline to calcareous soil from 4,800 to 5,200 feet elevation. There is potential habitat for this plant at the proposed well site.

Cliff nama *(Nama xylopodum)* This herbaceous perennial grows in partly shaded limestone cliffs in mountain shrub and piñon-juniper habitats from 4,500 to 6,500 feet elevation. There is potential habitat for this plant in the area, but not at the proposed well site.

Alamo beardtongue (*Penstemon alamosensis)* This perennial forb grows in sheltered rocky areas, canyon sides, and canyon bottoms, on limestone between 4,300 and 5,300 feet elevation. There is potential habitat for this plant in the area, but not at the proposed well site.

New Mexico rock daisy *(Perityle staurophylla* variety *staurophylla)* This perennial forb grows in crevices in limestone cliffs and boulders, usually on protected north and east exposures, from 4,900 to 7,000 feet. There is potential habitat for this plant in the area, but not at the proposed well site.

Gray Sibara (*Sibara grisea*) BLM Sensitive- This annual forb grows in crevices and limestone cliffs in shrubby and piñon-Juniper habitats from 4,500-6,000 feet. Livestock grazing is not believed to be a threat to this species. There is potential habitat for this plant in the area, but not at the proposed well site.

3.7.2 Special Status Animals

Special Status animal species lists for Otero County were compiled from: (www.wildlife.state.nm.us/conservation/threatened_endangered_species/index.htm and http://www.fws.gov/southwest/es/newmexico/SBC_view.cfm?spcnty=Otero . These lists are on file in the Las Cruces District Office.

Known geographic distribution and habitat requirements were considered for each species in comparison with habitat types on the allotments. The results of this analysis are that of 41 species listed by the FWS as species of concern in Otero County, 16 species are considered to have potential habitat within the area, these species are listed in Table 4.

Table 4 Special Status Wildlife Species.

Species	Status
Ferruginous hawk	BLMS
Aplomado falcon	FP
Common ground dove	NME
Loggerhead shrike	BLMS, FWSS
Burrowing owl	BLMS, FWSS
Gray vireo	NMT
Baird's sparrow	NMT, BLMS, FWSS
Texas horned lizard	BLMS
Western small-footed myotis	BLMS
Cave myotis	BLMS
Long-eared myotis	BLMS
Long-legged myotis	BLMS
Fringed myotis	BLMS
Spotted bat	NMT, BLMS, FWSS
Townsend's big-eared bat	BLMS, FWSS
Big free-tailed bat	BLMS
FT=FEDERAL THREATENED, FWSS=NEW MEXICO SPECIES OF CONCERN, NMT=NEW MEXICO THREATENED, NME=NEW MEXICO ENDANGERED, FP=FED. PROPOSED, BLMS=BLM SENSITIVE, FE=FEDERAL ENDANGERED	

Habitat descriptions for these special status wildlife species are available from the Bureau of Land Management, Las Cruces District Office.

3.8 Wastes, Hazardous or Solid

There are no known hazardous or solid waste issues in the area of the proposed well.

3.9 Water Resources

3.9.1 Watershed Hydrology

The proposed well location lies adjacent to a large tributary of Tularosa Creek. Additionally, the access roads are also adjacent to Tularosa Creek tributaries and cross these tributaries in several locations. Tularosa Creek originates from two major drainages on the Mescalero Apache reservation and flows westward joining near the community of Mescalero, and then continues westward for approximately 16 miles. Tularosa creek passes through the community of Bent and the Village of Tularosa before infiltrating into playas in the Tularosa basin. Major uses in the Tularosa creek watershed include the primary municipal water supply for the Village of Tularosa, irrigated agriculture, livestock grazing, timber production and harvesting, recreation and urban development. The Tularosa Creek HUC 10 watershed encompasses around 114,298 acres. BLM controls approximately 12,300 surfaces acres within this watershed. The Village of Tularosa and the City of Alamogordo have historically relied on existing surface water flowing from the perennial streams of the Sacramento Mountains. The communities have had to look to groundwater for future water supplies. The USGS stream-gauging records for Tularosa Creek over the past 10 years indicate a 30 percent decline in discharge (USGS 2005). The Tularosa Creek stream bed and associated floodplains has been eroded approximately 3-12 feet below the original grade. Judging by the dominate age of cottonwood trees present on the current floodplain of the creek, it

is inferred that the majority of this erosion has occurred within the past 15-30 years. Currently, man-made structures such as bridge foundations, fish habitat structures, and stream gauge dams act as gradient stabilization structures along the BLM portion of the Tularosa Creek. These structures help to slow further down-cutting of the stream bed. Additionally, tributaries of Tularosa Creek and others adjacent to the Tularosa Creek watershed within the project area display equal amounts of erosion and down-cutting. These erosion features of the watershed are most likely attributed to easily eroded soils, slope of topography, and a substantial drop in the shallow groundwater table. Erosion of this magnitude has reduced groundwater recharge, segregated overland water flow and increased sediment transport. Additionally, several spring fed riparian zones occur within a few miles of the proposed project location.

The basin-fill deposits represent the most productive aquifers in the area in terms of the quantity of water available, achievable production rates, and degree of historic development. Groundwater in the basin-fill aquifers generally originates in the mountains as precipitation then moves into coarser material in the basin. The project area likely contains multiple vertically stack aquifers separated by less permeable confining layers. Basin-fill deposits are typically thicker and have higher water holding capacities toward the center of the basin.

3.9.2 Surface and Groundwater

The proposed well location lies adjacent to a large tributary of Tularosa Creek. Additionally, the access roads are also adjacent to Tularosa Creek tributaries and cross these tributaries in several locations. In reports submitted by the NM Water Quality Control Commission (NMWQCC) to Congress, as required by Section 305(b) of the CWA, 10.2 miles of Tularosa Creek from the town of Tularosa to the headwaters were assessed and listed as impaired on the State of New Mexico CWA Sections 303(d)/305(b) Integrated List (Integrated List). Several assessments of the creek have been completed since 1994. Primarily, analysis has classified the creek as “Partially Supporting” or “Not Supporting Designated Uses”. The Designated uses not supported have included warm water fisheries and cold water fisheries. Aluminum and mercury were listed as toxic at chronic levels in 1994. Since 1994, additional probable causes for these impairments have included sedimentation, aluminum, mercury, removal of riparian vegetation, and stream bank modification and destabilization. BLM is awaiting the results of the most current 2012-2014 State of New Mexico CWA 303(d)/305(b) Integrated List (Integrated List). The water quality of springs and seeps in the area can range from fresh to brackish suggesting variable geology, aquifers, water mixing zones, water source origin, or a combination of these. Additional water quality information for the springs is unknown at this time.

Groundwater quantity and quality within this area varies both laterally and vertically; and is largely controlled by type and extent of the underlying geologic formations and basin-fill deposits. Varying salinities of the groundwater are primarily due to soluble minerals in the aquifer sediments, recharge from surface water, and groundwater flowing through sedimentary rocks rich in sulfate materials. The quality of existing water resources for the City of Alamogordo ranges from about 300 mg/L TDS from Bonito Lake to as much as 1,400 mg/L TDS from groundwater pumped from the La Luz well field (Livingston 2003b). The average TDS value of water in the distribution system is around 800 mg/L in the wintertime, rising to about 1,100 mg/L during the summer months when the wells are being pumped extensively.

The New Mexico Office State Engineers’ water listing shows fresh water for irrigation, stock and domestic use is obtained from the Quaternary Alluvium and Yeso Formation. Surrounding townships and historical well files suggest water at approximate depths of 10’s of feet to approximately 500 ft. At this

proposed location, useable water may occur to an approximate depth of 450 ft. Deepest expected fresh water is above 500 ft.

3.10 General Topography/Surface Geology

The topography of this area is gently rolling to very steep terrain with thin to moderate topsoil and scattered surface exposures of caliche. Surface elevation is 5,627 ft. of the proposed well on relatively flat to very gently sloping ground on pasture land. The soil formed primarily in material weathered from inter-bedded shale, siltstone, arkosic sandstone and cobble conglomerate of the Abo Formation and calcareous shale, thin argillaceous limestone, quartz sandstone, and limestone conglomerate of the Bursum Formation.

3.11 Mineral Resources

The proposed well is located on a currently authorized Oil and Gas Lease NMNM-38313 held by Jalapeño Corporation. There are no lode or placer mining claims located at the site of this proposed well. No other mineral deposits are reported other than some accumulations of alluvium. The Yeso formation outcrops at the surface and is exposed through much of this area.

3.12 Soil

Complete soil information is available in the Soil Survey of Otero County, New Mexico, (USDA Soil Conservation Service 1981). The soil map units represented in the project area are:

Soil map units in this area are dominated by Badland (BAF). Badland is gently rolling to very steep, highly dissected, nearly barren land consisting of areas of Rock outcrop and thin soil. This soil formed primarily in material weathered from inter-bedded shale, silt-stone, arkosic sandstone, and cobble conglomerate of Abo Formation and calcareous shale, thin argillaceouse limestone, quartz sandstone, and limestone conglomerate of the Bursum Formation. Limestone and sandstone outcrops form rock ledges and escarpments throughout this complex. Rounded to semi-rounded gravel, flagstone, and cobbles cover much of the surface. Exposed gypsum inter-bedded with outcrops limestone and shale dominates the lower parts of the side slopes and southern exposures of most hills in the unit. Runoff is rapid on most areas of Badland. Sever sheet and gully erosion takes place even during small rain showers. Any development should be carefully evaluated because the soil in this map unit area is highly erodible.

3.13 Vegetation

This lease is within a grassland community as identified in the White Sands RMP/EIS. Page 4-31 of the RMP/EIS describes the Desired Plant Community (DPC) concept and page 2-46 identifies the components of a grassland community.

The Ecological Site Description for the well pad and access road varies from Shallow to Deep range sites. The historic plant community for this site has the aspect of warm season grasses black grama *(Bouteloua eriopoda),* alkali sacaton *(Sporobolus airoides)* and gyp grama *(Bouteloua brevifoilis)* on shallower soil. On those deeper soil profiles, tobosa *(Pleuraphis mutica),* bush muhly *(Muhlenbergia porteri)* Arizona cottontop *(Digitaria californica),* blue grama *(Bouteloua gracilis)* and vine mesquite *(Panicum obtusum)* would dominate. This area is composed largely of short and mid-grasses with lesser amounts of perennial forbs and a few scattered shrubs and half-shrubs. There is some piñon *(Pinus edulis)*

and juniper *(Juniperus* spp.) influence as a result of this area being situated on elevated foothills of the Sacramento Mountains.

3.14 Livestock Grazing/Range

The access road and proposed drill pad are located on BLM grazing allotment #07065 Domingo Springs allotted to Ben Virden. Grazing is currently under a section 3 grazing permit for 78 Animal Units (AUs) at 59% Public land use yearlong for 553 Animal Unit Months (AUM's).

3.15 Visual Resources

The proposed action is located in an area designated VRM Class III Objective. This Objective partially retains the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

3.16 Recreation

The area around the proposed action is primarily used by recreational visitors engaged in hunting, caving, sight-seeing, driving for pleasure, off-highway vehicle use and other recreational activities. Non-recreation visitors include oil and gas industrial workers, farmers and ranchers.

3.17 Cave/Karst

This proposed action is in the vicinity of moderate karst potential, but not at the location of the access road and proposed well pad.

3.18 Lands & Realty

The nominated lease areas are accessible by existing roads. However, legal access for the roads does not exist. There are no other pending right-of-ways (ROW) on the nominated parcels.

3.19 Paleontology

This PFYC system is utilized for land use planning efforts and for the preliminary assessment of potential impacts and proper mitigation needs for specific projects. It is intended to provide a tool to assess potential occurrences of significant paleontological resources. It is meant to be applied in broad approach for planning efforts, and as an intermediate step in evaluating specific projects.

There are five Classes with Class 1 being Very Low Potential and Class 5 being Very High Potential. Although granite, lava beds, and other igneous or metamorphic rock types are usually considered to be void of any fossils, outcrops of these rocks may have fissure fillings, cave-like structures, sinkholes, and other features that may preserve significant paleontological resources or information, so the potential is not zero; therefore Class 1 is applied to these rock types usually considered not to contain fossil resources. It is intended that this system replace the current Condition Classification in the Handbook (H-8270-1), for Paleontological Resource Management.

The local geology is dominated by the Yeso Formation, a Leonardian age formation of sandstones, siltstones, anhydrite, gypsum, halite, and dolomite with isolated exposures of San Andres Formation

consisting of limestone and dolomite with minor shale. The probability of vertebrate fossils within these sedimentary structures is low. Further west, there are underlying Abo (Robledo Member) sandstones and siltstones that may host Permian Age fossils, but these structures are distant from the proposed project area.

Potential Fossil Yield Classification (PFYC) for the proposed action is 3. The area is characterized by the Abo Formation; red beds, arkosic at base, finer and more mature above, with depositional environments shorelines, and mudflats. Management Concern for paleontological resources on Class 3 acres may extend across the entire range. Ground disturbing activities need to be evaluated on a case-by-case basis for the need to mitigate. The paleontological locational database shows no recorded specimens within 8 miles of the proposed action.

Specifically, the site of the proposed action is on a deep alluvial fan extending east to west from the Sacramento Mountains. An erosional cut across the site area reveals a N/S trending buried stream bed with rounded limestone cobbles fixed in a cemented carbonate. Otherwise, the alluvium appears to be silty-clay with dispersed limestone cobbles. The depth of the exposed profile is ~10 feet below existing surface level.

Fracking on BLM New Mexico Well Sites

One stimulation method, hydraulic fracturing (known as “fracking” in the oil and gas industry) is a process that uses high pressure pumps to develop pressure at the bottom of a well to crack the hydrocarbon formation. This aids extraction of oil and gas deposits that might be left behind by conventional oil and gas drilling and pumping technology.
Hydraulic fracturing is a 60-year-old process that is now being used more commonly as a result of advanced technology.

This makes it possible to introduce fluids carrying sand, walnut hulls, or other small particles of material into the newly created crevices to keep the fractures open when the pressure is relieved.
This process increases the flow rate and volume of reservoir fluids that move from the producing formation into the wellbore. The fracking fluid is typically more than 99 percent water and sand, with small amounts of readily available chemical additives used to control the chemical and mechanical properties of the water and sand mixture.

To ensure that hydraulic fracturing is conducted in a safe and environmentally sound manner, the BLM approves and regulates all drilling and completion operations, and related surface disturbance on Federal public land. Operators must submit Applications for Permit to Drill (APDs) to the agency. Prior to approving an APD, a BLM New Mexico geologist identifies all potential subsurface formations that would be penetrated by the wellbore. This includes all groundwater aquifers and any zones that would present potential safety or health risks that may need special protection measures during drilling, or that may require specific protective well construction measures.

Once the geologic analysis is completed, the BLM reviews the company’s proposed casing and cementing programs to ensure the well construction design is adequate to protect the surface and subsurface

environment, including the potential risks identified by the geologist and all known or anticipated zones with potential risks.

During drilling, the BLM is on location during the casing and cementing of the ground water protective surface casing and other critical casing and cementing intervals. Before hydraulic fracturing takes place, all surface casing and some deeper, intermediate zones are required to be cemented from the bottom of the cased hole to the surface. The cemented well is pressure tested to ensure there are no leaks and a cement bond log is run to ensure the cement has bonded to the casing and the formation. If the fracturing of the well is considered to be a "non-routine" fracture for the area, the BLM would always be onsite during those operations as well as when abnormal conditions develop during the drilling or completion of a well.

Potential Mitigation: Issuance of such mitigation measures that are deemed necessary to resolve environmental predicaments will be performed upon issuance of the potential APD for Ysletano Canyon Federal #4.

4 ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

4.1 Alternative A – No Action

The no action alternative serves as a baseline for comparison of environmental effects. Under the No Action Alternative, the APD would be denied and the proposed well would not be drilled. There would be no new impacts due to oil and gas exploration/production to the resources in this location. Current land and resource uses in the project area would continue at current levels. Denial of the APD would interfere with Jalapeño Corporation's ability to develop the lease. The consequences to this particular lessee if the APD were denied include frustration of lessee expectations to develop the lease; lack of diligence as a violation of lease terms; and potential contraction of the unit area due to a lack of production information. Additional information regarding the productivity and commercial value of the potential oil and gas resources at this location would not be gathered for future decisions by the operator and the BLM.

If the BLM does not approve the APD, it is assumed that the demand for oil and gas would not decrease. Demand would likely be addressed by production elsewhere within the U.S. or through imports. Due to less stringent environmental regulations in some areas outside of the U.S., it is possible there would be increased emissions of volatile organic compounds (VOC), air borne dust, and GHGs during exploration and production operations. In addition, there would likely be additional emissions of GHGs during transportation of these commodities to US ports.

The No Action Alternative may result in slightly reduced domestic production of oil and gas resulting in reduced Federal and state royalty income since this is subsurface federal mineral estate. If the BLM foregoes the potential development of these minerals, it is assumed that the public's demand for the resource would not change. Instead, the resource foregone would be replaced by other sources that may include a combination of imports, fuel switching, and other domestic production. This displacement of supply would offset any reductions in emissions achieved by not developing the subject tracts. The No Action Alternative will not evaluated further in Chapter 4.

4.2 Alternative B- Proposed Action

Under Alternative B- Proposed Action, the well would be drilled as originally proposed, without changes to reduce potential environmental impacts. Descriptions of potential impacts on individual resources for action alternatives are presented in the following text. Also described are mitigation measures that could be incorporated by BLM where appropriate as Conditions of Approval attached to the permit.

Alternative C- Preferred Alternative

Alternative C is the proposed action but the road proposed to be built to the pad would not be constructed unless the well proved to be a producing well.

4.2.1 Air Resources Direct and Indirect Effects Alternatives B and C

4.2.1.1 Air Quality

Air quality would temporary be directly impacted with pollution from exhaust emissions, chemical odors, and dust that would 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. Wind that frequents the southeastern part of New Mexico generally disperses odors and emissions. Impacts to air quality would be greatly reduced as the construction and drilling phases are completed. Other factors that currently affect air quality in this area include dust from livestock herding activities, recreational use, and from use of roads for vehicular traffic.

The Federal Clean Air Act requires that air pollutant emissions be controlled from all significant sources in areas that do not meet the national ambient Air quality standards. The New Mexico Air Quality Bureau (NMAQB) is responsible for enforcing the state and national ambient air quality standards in New Mexico. Any emission source must comply with the NMAQB regulations (USDI, BLM 2003b). At the present time, the counties that lie within the jurisdictional boundaries of the Las Cruces District Office are classified as in attainment of all state and national ambient air quality standards as defined in the Clean Air Act of 1972, as amended (USDI, BLM 2003b).

The Environmental Protection Agency (EPA), on October 17, 2006, issued a final ruling on the lowering of the National Ambient Air Quality Standard (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 PM2.5, was lowered to 35 ug/m^3 from the previous standard of 65 ug/m^3. This revised PM2.5 daily NAAQS was promulgated to better protect the public from short-term particle exposure. The significant threshold of 35 ug/m^3 daily PM2.5 NAAQS is not expected to be exceeded under the proposed action.

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 separation facilities, as well as potential releases of GHG and volatile organic compounds during drilling or production activities. The degree of impact will also vary according to the characteristics of the geologic formations from which production occurs.

This level of exploration and production would contribute a small incremental increase in overall

hydrocarbon emissions, including GHGs, released into the planet's atmosphere. When compared to total national or global emissions, the amount released as a result of potential production from this proposed action would not have a measurable effect on climate change due to uncertainty and incomplete and unavailable information.

Consumption of oil and gas developed from the proposed well is expected to produce GHGs. Consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availability of other energy sources, economics, demography and weather or climate.

4.2.1.2 Climate

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.

4.2.1.3 Climate Mitigation

EPA's inventory data breaks down the total US sources of GHG gases by major categories that include "Natural Gas Systems" and "Petroleum Systems." This inventory lists contributions of natural gas and petroleum systems to total CO2 and CH4 emissions (natural gas and petroleum systems do not produce significant amounts of any of the other greenhouse gases). For Natural Gas Systems, the EPA categorizes emissions from distinct stages of the larger category of natural gas systems. These stages include field production, processing, transmission and storage, and distribution. The BLM has regulatory jurisdiction only over field production.

BLM's regulatory jurisdiction over field production of Natural Gas Systems and production field operations of Petroleum Systems 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. The future development of the lease parcels may be subject to appropriate conditions of approval (COAs) to reduce or mitigate GHG emissions. This may occur at the project level through additional analysis. Specific measures developed at the project stage would be incorporated as COAs in the approved APD, and are binding on the operator. Typical measures may include: flare hydrocarbon and gases at high temperatures in order to reduce emissions of incomplete combustion; water dirt roads during periods of high use in order to reduce fugitive dust emissions; require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and re-vegetate areas of the pad not required for production facilities to reduce the amount of dust from the pads.

EPA datum shows 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 Best Management Practices proposed by the EPA's Natural Gas Energy Star program. The Las Cruces District Office will work with industry to facilitate the use of the relevant BMPs for operations proposed on federal mineral leases where such mitigation is consistent with agency policy.

4.2.2 Cultural Resources Direct and Indirect Effects Alternatives B and C

Subsequent development of the lease could have impacts on archaeological and paleontological resources. Required archaeological surveys would be conducted upon all subsequent actions that are expected to occur from the lease sale to avoid disturbing cultural sites.

Jalapeño Corporation will be required to contract an archaeologist to perform a cultural inventory of the access road and area of the proposed well pad. A cultural report will be submitted to our cultural staff when this survey is completed. (Jalapeño Corporation has been made aware of this requirement).

Consequential project construction has the potential to impact cultural resources.

4.2.3 Native American Religious Concerns Effects Alternatives B and C

To date, the area to be affected by project construction has not been identified by interested tribes as being of tribal concern.

4.2.4 Environmental Justice Direct and Indirect Effects Alternatives B and C

No minority or low income populations would be directly affected in the vicinity of this proposed action. Indirect impacts could include impacts due to overall employment opportunities related to oil and gas and service support industry in this region, as well as economic benefits to State and County governments related to royalty payments and severance taxes. Other impacts could include a small increase in activity and noise disturbance in areas used for grazing, wood gathering or hunting. However, these impacts would apply to all public land users in this project area.

4.2.5 Invasive, Non-Native Species Direct and Indirect Effects Alternatives B and C

Construction of an access road and well pad may unintentionally contribute to establishment and spread of noxious weeds. Noxious weed seed could be carried to and from the project areas by construction equipment, drilling rig and transport vehicles. Main mechanism for seed dispersion on the road and well pad is by equipment and vehicles that were previously used, disturbed and or driven across through noxious weed infested areas. Potential for dissemination of invasive and noxious weed seed may be elevated by use of construction equipment typically contracted out to companies that may be from other geographic areas in this region.

Further, noxious weeds can negatively affect livestock and dairy producers by making forage either unpalatable or toxic to livestock, thus decreasing livestock productivity and potentially increasing producers' feed and animal health care costs. Increased costs to operators are eventually borne by consumers. Noxious weeds also affect recreational uses, and reduce realty values of both the directly influenced and adjacent properties.

4.2.5.1 Invasive, Non-Native Species Mitigation

The operator shall be held responsible if noxious weeds become established within areas of operations (access road and/or well pad). Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

4.2.6 Wildlife Direct and Indirect Effects Alternatives B and C

Some small wildlife species may be killed and their dens or nests destroyed during access road and well pad construction. Access road and well pad construction could cause fragmentation of wildlife habitat. Short-term negative impacts to wildlife would occur during construction phases of operations and would be due to noise and habitat destruction. In general, most wildlife species would become habituated to new facilities. For other wildlife species with a low tolerance to activities, operations on the well pad would continue to displace wildlife due to disturbances by high volumes of vehicle traffic during equipment maintenance.

4.2.6.1 Wildlife Mitigation

Netting storage tanks and installation of cones on separator stacks would alleviate losses of wildlife species. Interim reclamation and final rehabilitation through re-vegetation would return wildlife to previous levels.

4.2.7 Wastes, Hazardous or Solid Direct and Indirect Effects Alternatives B and C

This lease parcel falls under environmental regulations that impact exploration and production waste management and disposal practices and impose responsibility and liability for protection of human health and the environment from harmful waste management practices or discharges.

4.2.8 Water Resources Alternatives B and C

4.2.8.1 Watershed Hydrology Direct and Indirect Effects

Construction and surface disturbance activities from the construction of the well pad and access roads can result in long and short-term alterations to the hydrologic regime. Peak and low flow of perennial streams and ephemeral streams would be directly affected by an increase in impervious surfaces resulting from the construction of the well pad and road. The potential hydrologic effects to peak flow is reduced infiltration where surface flows can move more quickly to perennial or ephemeral rivers and streams, causing peak flow to occur earlier and be larger. Increased magnitude and volume of peak flow can cause bank erosion, channel widening, downward incision, and disconnection from the floodplain. The potential hydrologic effects to low flow is reduced surface storage and groundwater recharge, resulting in reduced base-flow to perennial, ephemeral, and intermittent rivers and streams. Additionally, lowering shallow groundwater levels caused from the extraction of groundwater during production could cause additional downward incision. This in turn would further the reduction of groundwater recharge, segregate overland water flow and increase sediment transport. The direct impact would be that hydrologic processes may be altered where the perennial, ephemeral, and intermittent river and stream system responds by changing physical parameters, such as channel configuration. These changes may in turn impact chemical parameters and ultimately the riparian and aquatic ecosystems.

Long-term direct and indirect impacts to the watershed and hydrology would continue for the life of the well and would decrease once surfacing material has been removed from well pad and access road. Short-term direct and indirect impacts to watershed and hydrology would occur from access roads that are not surfaced with material and would likely decrease in time due to reclamation efforts. The extraction of water during production has the potential to negatively impact groundwater levels; effecting water supplies for local communities and near-by springs and wells.

4.2.8.2 Watershed Mitigation

The operator would stockpile the topsoil from the surface of well pads which would be used for surface reclamation of the well pads. Reserve pits would be re-contoured and seeded as described in attached Conditions of Approval. Upon abandonment of the wells and/or when access roads are no longer in service the Authorized Officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached Conditions of Approval.

4.2.8.3 Surface Water Direct and Indirect Effects Alternatives B and C

Surface disturbance from construction of the well pad, closed-loop system, and access roads can result in degradation of surface water quality from non-point source pollution, increased soil losses, and increased gully erosion.

Potential direct impacts that would occur due to these surface disturbing activities include increased surface water runoff and off-site sedimentation brought about by soil disturbance: increased salt loading and water quality impairment of surface waters; channel morphology changes due to road and pipeline crossings; and possible contamination of surface waters by produced water. Magnitude of these impacts to water resources would depend on proximity of this disturbance to a drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activity would occur, and the timely implementation and success or failure of mitigation measures.

Direct impacts from increased sediment transport would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization and reclamation efforts. Construction activities would occur over a relatively short period. Therefore, the majority of the disturbance would be intense but short lived. Direct impacts to surface water quality could result from non-point source pollution during storm flow events.

Development within the surrounding Tularosa Creek watershed could impact the stream directly and indirectly. Directly, the stream, riparian ecosystem, and fisheries habitat would be affected if development fluids spill and reach the stream either directly or from monsoonal precipitation. This in turn would likely kill all in stream fauna including fishes and invertebrates and severely curtail the health of the riparian ecosystem. Construction activities and other development actions could impact the stream indirectly, as well, through nonpoint sources of pollution.

Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

4.2.8.4 Surface Water Mitigation

Use of a closed system, steel tanks, and/or lined reserve pits would reduce or eliminate the seepage of drilling fluid, produced water, and product into the soil and groundwater. Spills of produced fluids (e.g., saltwater, oil, and/or condensate in an event of a breech, overflow, or spill from storage tanks) could result in contamination of the soil on site, or off-site, and may potentially impact surface and groundwater resources in the long-term.

A containment structure shall be constructed to hold the capacity of the entire contents of the largest production tank, plus 24-hour production, unless more stringent protective requirements are deemed necessary by the BLM Authorized Officer.

4.2.8.5 Groundwater Direct and Indirect Effects Alternatives B and C

Hydraulic fracturing is a common process and applied to nearly all wells drilled. Hydraulic fracturing fluid is roughly 99 percent water but also contains numerous chemical additives as well as propping agents, such as sands. Chemicals added to stimulation fluids include friction reducers, surfactants, gelling agents, scale inhibitors, acids, corrosion inhibitors, antibacterial agents, and clay stabilizers. Stimulation techniques have been used in the United States since 1949. Over the last 10 years, advances in multi-stage and multi-zone hydraulic fracturing has allowed development of gas fields that previously were uneconomic.

Contamination of groundwater could occur without adequate cementing and casing of the proposed well bore. Casing specifications are designed and submitted to the BLM. The BLM independently verifies the casing program, and the installation of the casing and cementing operations are witnessed by certified Petroleum Engineering Technicians. Surface casing setting depth is determined by regulation. Adherence to APD COAs and other design measures would minimize potential effects to groundwater quality.

In the long term, petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Similarly, possible leaks from tanks and reserve and evaporation pits could degrade surface and ground water quality. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection. Additionally, the extraction of water during production has the potential to negatively impact groundwater levels; effecting water supplies for local communities and near-by springs and wells.

4.2.8.6 Groundwater Mitigation

Use of plastic-lined reserve pits would reduce or eliminate seepage of drilling fluid into the soil and eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breech, overflow, or spill from storage tanks) could result in soil contamination on-site, or off-site, and may potentially impact surface and groundwater resources long-term. Casing and cementing requirements imposed on proposed wells would reduce or eliminate the potential for groundwater contamination from drilling muds and other surface sources. All appropriate standards and guidelines outlined in the BLM- Gold Book (2007) would be followed.

4.2.9 General Topography Direct and Indirect Effects Alternatives B and C

Surface disturbance anticipated from construction of the well pad and access road would have minimal impacts on the area of operations. No major land or soil displacement would occur from cradle to grave operations associated with drilling the well.

Direct impacts would result from removal of surface soil during well pad and access road construction. Consequential earth-moving activities would indirectly impact vegetation and would cause fragmentation of surface habitat where small animals live in the project area.

4.2.10 Topography/Geology Mitigation

Inclusion of mitigation measures to conserve the landscape as much as possible in the Conditions of Approval (COAs) would lessen impacts from surface disturbance activities on this project.

4.2.11 Soil Direct and Indirect Effects Alternatives B and C

Construction of the access road, well pad, and the use of a closed system or steel tanks would physically disturb topsoil and would expose substratum soil.

Direct impacts resulting from these surface disturbing activities include removal of vegetation, soil exposure, mixing of horizons, compaction, loss of top soil productivity and susceptibility to wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion with a possible exception of dust from vehicle traffic. These impacts could result in increased indirect impacts such as runoff, erosion and off-site sedimentation. Activities that could cause these types of indirect impacts include construction and operation of well site, access road, gas pipelines and production facilities.

Contamination of soil from drilling and production wastes mixed into soil or spilled on surfaces could cause a long-term reduction in site productivity. Some of these direct impacts can be reduced or avoided through proper design, construction and maintenance and implementation of best management practices.

Additional soil impacts associated with lease development would occur when heavy precipitation causes water erosion damage. When water saturated segment(s) on the access road become impassable, vehicles may still be driven over the road. Consequently, deep tire ruts would develop. Where impassable segments are created from deep rutting, unauthorized driving may occur outside the designated route of the access road.

4.2.11.1 Soil Mitigation

Topsoil will be stripped to approximately 6 to 12 inches in depth within the area designated for construction of the well pad. The operator shall stockpile the stripped topsoil adjacent to the constructed well pad. Topsoil will be used for interim and final reclamation of surface disturbance created by construction of the well pad. Topsoil will not be used to construct containment structures or earthen dikes that are constructed and maintained on the constructed well pad. Soil from neighboring earthen or stock tanks for livestock will not be utilized for reclamation purposes. Direct and indirect impacts to soil resulting from surface disturbing activities will be mitigated through instructions and/or orders for surface reclamation/restoration of all disturbed areas.

Upon well abandonment and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation/restoration of disturbed areas as described in the attached Conditions of Approval.

A containment structure shall be constructed to hold capacity of entire contents of the largest production tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Road construction requirements and regular maintenance would alleviate potential impacts to the access road from water erosion damage.

4.2.12 Vegetation Direct and Indirect Effects Alternatives B and C

Construction of the access road and well pad would remove approximately 2.9 acres of native vegetation. Vegetative recovery on the access road and well pad would depend on life of the well. Native vegetation would encroach on the well pad over time and where high volumes of vehicular traffic occur. Areas

driven over would remain un-vegetated. If it is a producing well, reclamation would not commence until the well is a depleted producer and is plugged and abandoned. If the well is drilled as a dry hole and is plugged, the reclamation of the access road and well pad would immediately follow. Impacts to vegetation would be short-term if reclamation efforts of disturbed areas have re-vegetated successfully within a few years.

4.2.12.1 Vegetation Mitigation

No long-term impacts to vegetation are anticipated. However mitigation measures will be taken in the event impacts to vegetation are found.

4.2.13 Livestock Grazing/Range Direct and Indirect Effects Alternatives B and C

During construction and drilling phases of this well, there would be some minor disruption of livestock grazing in the pastures, specifically on the well pad. Increase of vehicle traffic within this project area could lead to conflicts with livestock.

4.2.13.1 Livestock Grazing Mitigation

If any conflicts with livestock do arise as a result of the access road and well pad construction, mitigation measures will be taken, and consultation with the land owner will mitigate those impacts.

4.2.14 Visual Resources Direct and Indirect Impacts Alternatives B and C

The proposed action is located in an area designated VRM Class III. Visual Resource Management (VRM) on public land is conducted in accordance with BLM Handbook 8410 and BLM Manual 8411. The Class III objective is to: Partially retain existing landscape character. Levels of change to characteristic landscape should be moderate. Management activities may attract attention but should not dominate a casual observer's view. Changes should repeat the basic elements found in the predominant natural features of characteristic landscape.

Facilities, such as produced water, condensate or oil storage tanks that rise above eight feet, would provide a geometrically strong vertical and horizontal visual contrast in form and line to the characteristic landscape and vegetation, which have flat, horizontal to slightly rolling form and line. Construction of an access road, well pad and other ancillary facilities, other than facilities greater in height than eight feet, would slightly modify existing area visual resources.

Facilities, such as condensate and produced water or oil storage tanks that rise above eight feet, would provide a geometrically strong vertical and horizontal visual contrast in form and line to the characteristic landscape and vegetation, which have flat, horizontal to slightly rolling form and line.

4.2.14.1 Visual Mitigation

Under visual resource Class III, the method for repeating the basic elements would be to remove strong vertical and horizontal contrast through use of low-profile facilities as reflected in the LCDO RMP (2005, p. AP1-4). Depending on the production nature of the well site, multiple low-profile condensate and/or oil or produced water tanks would be necessary to accommodate the project.

Through color manipulation, by painting well facilities to blend with the rolling to flat vegetative and/or landform setting with a gray-green to brownish color, the view is expected to favorably blend with the

form, line, color and texture of the existing landscape. The semi-gloss color Juniper Green from the standard environmental colors (June 2008) also closely approximates the color of the setting. All facilities, including the meter building would be painted this color.

The construction of an access road and other ancillary facilities, other than facilities greater in height than eight feet, would slightly modify the existing area visual resources. To further implement visual goals of a Class III setting, the well pad and pits would be designed to reduce vegetative and soil disturbance with the pits either dug provided as steel pits, black, gray or brush brown in color. The access road, well pad, pit(s) and berm(s) would be similar to the texture and horizontal line found throughout the setting. This strategy would be generally acceptable to the various visitors and workers in this setting.

Cumulative adverse visual impacts can be avoided by gradually moving into a more appropriate vegetative/landform setting color scheme. Facilities with low-profile horizontal line and form would facilitate favorable blending as older facilities go out of production and are removed.

4.2.15 Recreation Direct and Indirect Effects Alternatives B and C

Oil and gas activities would have little or no effect on recreational opportunities within this area. Large blocks of public land would allow recreationists to use public land and avoid oil and gas facilities within this area.

4.2.16 Cave/Karst Direct and Indirect Effects Alternatives B and C

The location of the proposed action is not in an area with karst potential.

4.2.17 Public Health and Safety Alternatives B and C

Construction and drilling operations will be conducted in a safe workman-like manner and no impacts are anticipated to occur when operations are conducted in a professional constructive manner.

4.2.18 Paleontology Direct and Indirect Effects Alternatives B and C

No documented specimens of any age have been collected within 8 miles of the proposed site. It is probable that both the fossiliferous Robledo Member and Pleistocene alluvial fans host some paleontological resources. Based on the available observations, there are no concerns for impacts to paleontological resources. A Discovery Stipulations will be included as a Condition of Approval for the Permit.

The shallow surface disturbance associated with the proposed pad leveling will have no impact. Subsequent impacts from road construction in the event that the well is a producer, will be assessed prior to construction.

On January 25, 2012 the proposed project area was surveyed by the LCDO Paleontological Coordinator. The results of that assessment are attached to this report. Briefly, inasmuch as the paleontological resources are attached to the surface estate, the BLM has no jurisdiction over the associated project surface disturbance. However, it is appropriate for the BLM to inform the surface estate owner of the actual and/or potential presence of paleontological resources that may be present. To that end, a copy of the Paleontological Survey Report will be forwarded to the surface estate owner. The following stipulation will be included as a condition of approval for any Federal undertaking:

4.2.18.1 Paleontological Mitigation:

"If significant paleontological resources are discovered during surface disturbing actions **or at any other time**, the proponent or any of his agents must: (a) stop work immediately at that site; (b) contact the appropriate BLM representative, typically the project inspector or Authorized Officer, as soon as possible; and (c) make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Work may not resume at that location until approved by the official BLM representative. In some cases, such as recovery of a dinosaur, further activity at that site may be delayed until the discovered fossils are recovered, or until the project is modified to avoid impacting the find. Because of the potential for lengthy delays, the BLM should assure that the project proponent understands this possibility prior to approval to begin work. "

4.2.19 Lands & Realty Direct and Indirect Effects Alternatives B and C

Leasing of the nominated parcels would create a need for legal access in order for the operator to conduct the exploration and drilling process.

4.2.19.1 Lands and Realty Mitigation

The operator would obtain a Right-of-Way over public land for legal access. This ROW application would be filed with the Las Cruces District Office. Special ROW stipulations would apply.

4.3 Cumulative Impacts

The leased area of this proposed action has yet to be industrialized with oil and gas well development. Any permitted surface disturbance for each project permitted will create a spreading out of land use fragmentation. Cumulative impacts fluctuate with gradual reclamation of well abandonments and creation of new additional surface disturbances in the construction of new access roads and well pads. An ongoing process of restoration of abandonments and creating new disturbances for drilling new wells gradually accumulates as minerals are extracted. Preserving as much land as possible and applying appropriate mitigation measures will alleviate 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 making the proposed tracts available for leasing. Some general assumptions however can be made: leasing the proposed tracts may contribute to drilling new wells.

The New Mexico Greenhouse Gas Inventory and Reference Case Projection 1990-2020 (Inventory) estimates that approximately 17.3 million metric tons of natural gas and 2.3 million metric tons of natural gas emissions are projected by 2010 as a result of oil and natural gas production, processing, transmission and distribution. As of 2008, there were 23,196 oil wells and 27, 778 gas wells in New Mexico.

An average number of oil and gas wells drilled annually in the District Office and probable GHG emission levels, when compared to the total GHG emission estimates from the total number of oil and gas wells in the State, represent an incremental contribution to the total regional and global GHG emission levels. This incremental contribution to global GHG gases cannot be translated into effects on climate

change globally or in the area of these site-specific actions. As oil and gas and natural gas production technology continues to improve in the future, one assumption is that it may be feasible to further reduce GHG emissions.

Regarding the linkage between climate change related warming and associated impacts, an assessment of the IPCC states that difficulties remain in attributing observed temperature changes at smaller than continental scales. Therefore, it is currently beyond the scope of existing science to predict climate change on regional or local scales resulting from specific sources of GHG emissions.

Within the lease there is currently one well (inactive) with 0.4 acres of surface disturbance. Up to 8 additional oil wells or 3 additional gas wells might be drilled within the lease with associated 72 acres of surface disturbance. The total number of wells that might be drilled cannot be stated with certainty. The number of wells that might be drilled is dependent on the success of the first wells drilled, the amount and quality of the fluid minerals produced, and production techniques.

Much of the land adjacent to the lease has yet to be leased for fluid minerals. Within one mile of the project area there are no existing active wells. New, producing wells within the lease will likely spur interest in the surrounding area. The number of wells that might be drilled in the future cannot be determined at this time.

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 dependent 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.

While it is likely that there will be no significant cumulative impact from this proposed action, continued oil and gas development, and other surface-disturbing activities in these areas, may potentially have negative cumulative impacts on vegetation, soil, water, livestock, wildlife and visual resources.

4.3.1 Residual Impacts

Direct impacts to the local environment detailed above remain throughout the life of the proposed operation; however, these impacts would be substantially reduced by mitigation measures.

4.3.2 Mitigation Measures

Mitigation measures have been identified and have been incorporated into stipulations and are made part of the permit. These measures include but are not limited to dust control, noxious weed control, road construction, maintenance and termination.

5 CONSULTATION/COORDINATION

This section includes individuals or organizations from the public and its' users, the interdisciplinary team (ID), and permittees that have been and will be contacted during development of this document.

Table 5 Summary of public contact made during preparation of this EA, and members of the LCDO NEPA Interdisciplinary Team present at the on-site inspection on July 21, 2011.

Public Contact	Title	Organization	Present at Onsite?
Harvey Yates	Permit Agent	**Jalapeño Corp.**	**Yes**
ID Team Member	Title	Organization	Present at Onsite?
Michael Smith	Geologist	LCDO	**Yes**
Joseph Navarro	Environmental Protection Specialist	LCDO	**Yes**
Mohammad Nash	Hydrologist-SWA	LCDO	**Yes**
Mark Hakkila	Wildlife Biologist	LCDO	No
David Legare	Archaeologist	LCDO	No
Lisa Phillips	Rangeland Management Specialist	LCDO	No
Kendrah Penn	Realty Specialist	LCDO	No
Oz Gomez	Recreation Specialist	LCDO	No
David Glass	Petroleum Engineer	RFO	No

This project (APD) was also posted at our LCDO office for 30 days on November 4, 2011. No comments were received from this posting.

6 REFERENCES

EPA Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. Environmental Protection Agency, Washington, D.C.

EPA, Natural Gas Star Program (2006 data) at: http://www.epa.gov/gasstar/accomplish.htm. Environmental Protection Agency, Washington, D.C.

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

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

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

Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007, Synthesis Report. A Report of the Intergovernmental Panel on Climate Change.

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

Potential Fossil Yield Classification Data Layer

USDA Soil Survey of Otero Area, New Mexico. 1981. Parts of Otero, Eddy and Chaves counties. Soil Conservation and Forest Service.

US Government Accountability Office Report "Climate Change, Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources" GAO-07-863, August 2007 (1st paragraph, 1st page, GAO Highlights) at: http://www.gao.gov/news.items/d07863.pdf.

U.S. Department of the Interior, Bureau of Land Management. 2005. Record of Decision and Resource Management Plan Amendment for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties. Las Cruces District Office.

U.S. Environmental Protection Agency, 2011. U.S. Greenhouse Gas Inventory Report: http://epa.gov/climatechange/emissions/usinventoryreport.html

APPENDICES

The Las Cruces District Office; Exhibit A:

General Location Map, Exhibit B:

LCDO, Conditions of Approval, and the special requirements derived from this EA, would be applied to this proposed action to minimize the surface disturbance and conserve the surrounding landscape.

EXHIBIT A: GENERAL LOCATION MAP

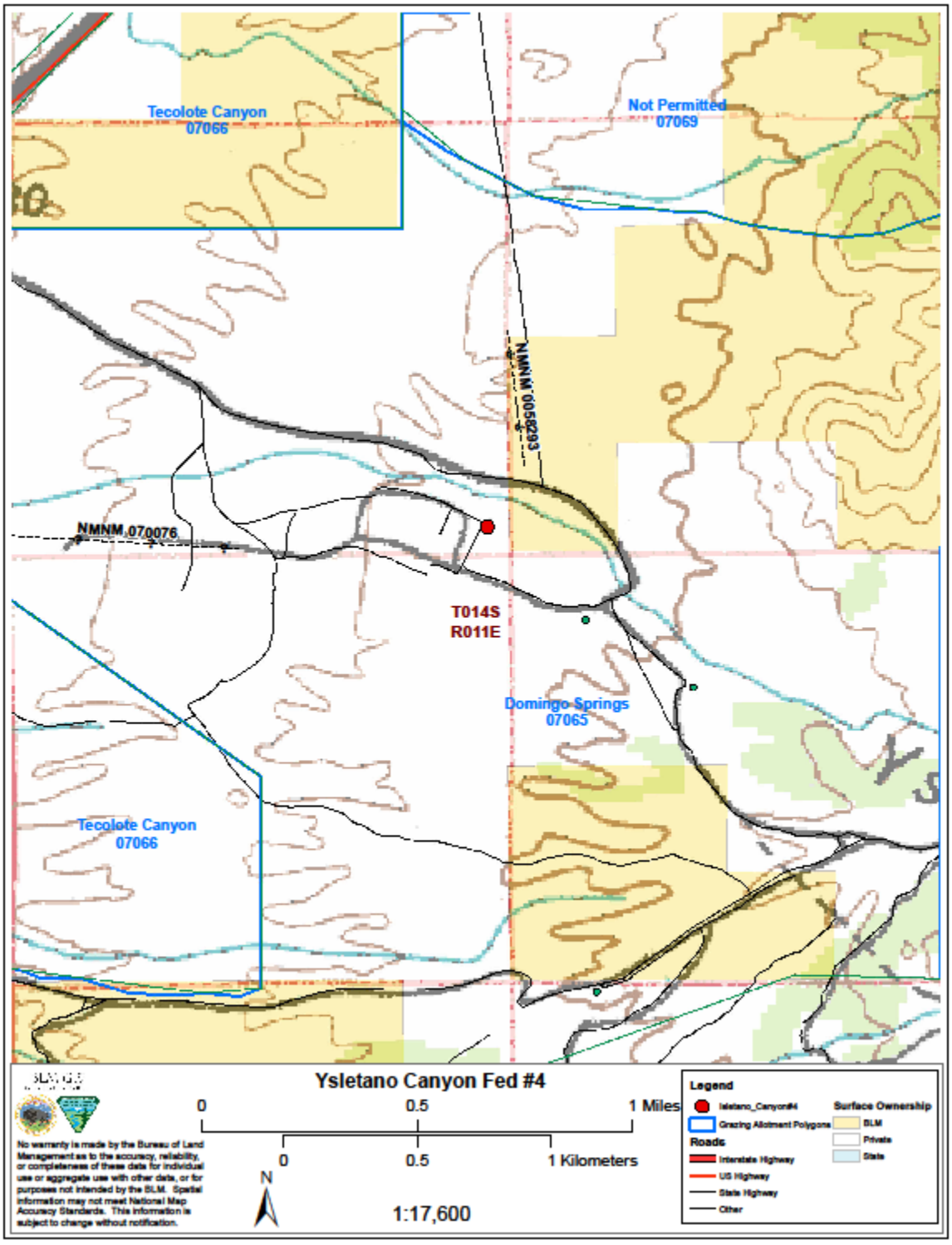
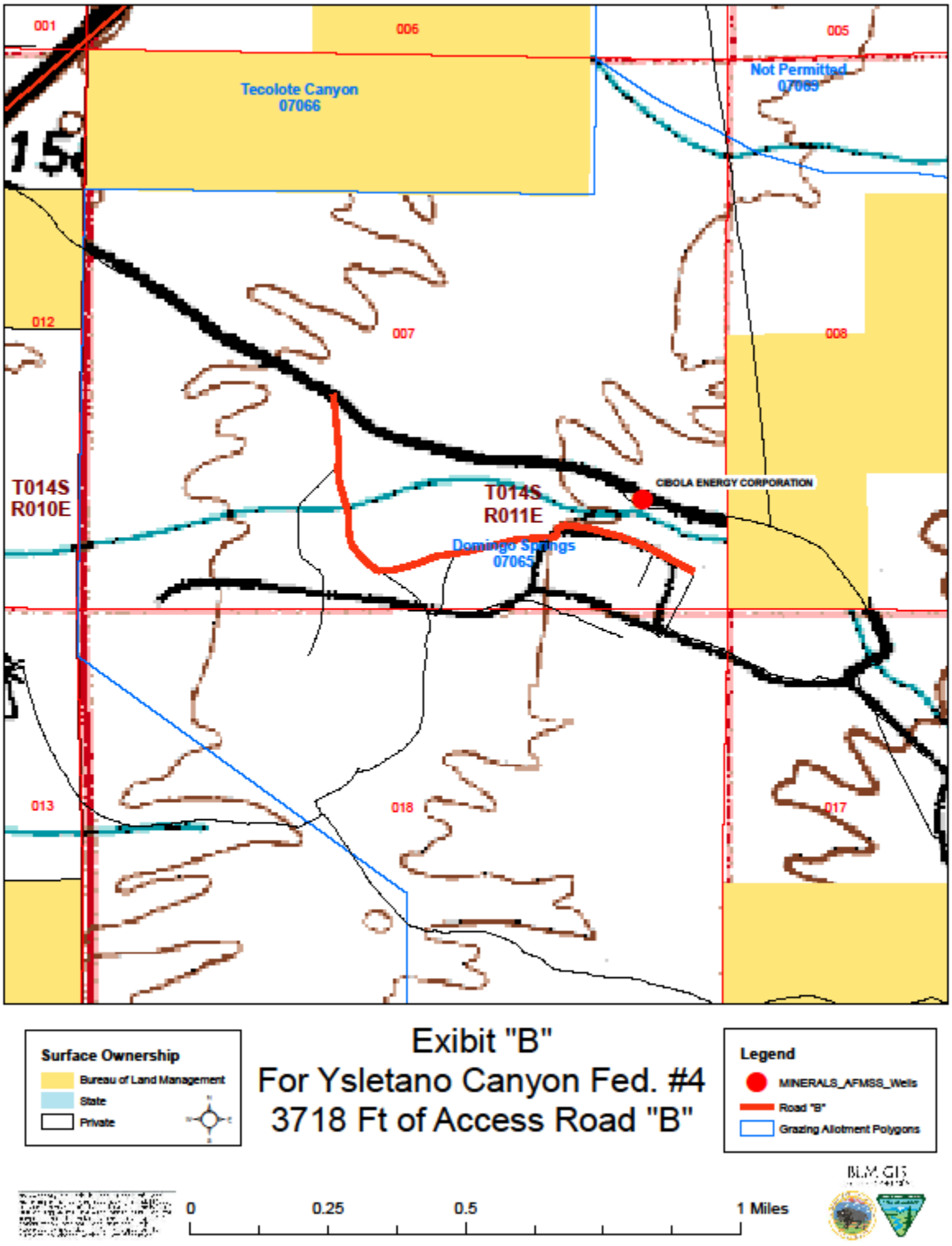


EXHIBIT "B"


001
006
005
Tecolote Canyon
07066
Not Permitted
07069
012
007
008
T014S
R010E
T014S
R011E
CIBOLA ENERGY CORPORATION
Domingo Springs
07065
013
018
017
Surface Ownership
Bureau of Land Management
State
Private
Exibit "B"
For Ysletano Canyon Fed. #4
3718 Ft of Access Road "B"
Legend
MINERALS_AFMSS_Wells
Road "B"
Grazing Allotment Polygons
0
0.25
0.5
1 Miles
BLM GIS

LAS CRUCES DISTRICT - LCDO
CONDITIONS OF APPROVAL

February 10, 2014

OPERATORS NAME: **Jalapeño Corporation**
LEASE NO: **NMNM-38313**
WELL NAME & NO: **Ysletano Canyon Federal #4**
SURFACE HOLE FOOTAGE: **330' FSL & 330' FEL**
BOTTOM HOLE LOCATION: **330' FSL & 330' FEL**
LOCATION: **Section 1, T. 14 S., R. 11E., NMPM**
COUNTY: **Otero County, New Mexico**

GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

I. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD (Filing of a Sundry Notice is required for this 60 day extension).

II. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

Paleontological Stipulation:

The permittee shall immediately notify the BLM Authorized Officer of any paleontological resources discovered as a result of operations under this authorization. The permittee shall suspend all activities

in the vicinity of such discovery until notified to proceed by the Authorized Officer and shall protect the discovery from damage or looting. The permittee may not be required to suspend all operations if activities can be adjusted to avoid further impacts to a discovered locality or be continued elsewhere. The Authorized Officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the Authorized Officer after consulting with the operator. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (1) following the Authorized Officer's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (2) following the Authorized Officer's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

III. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations (access road and/or well pad). Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

IV. CONSTRUCTION

A. NOTIFICATION:

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Las Cruces District Office at (575) 525-4300 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved Application for Permit to Drill and Conditions of Approval on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL:

Topsoil will be stripped to approximately 6 inches in depth within the area designated for construction of the well pad. The operator shall stockpile the stripped topsoil in rows adjacent to the constructed well pad. The topsoil will be used for interim and final reclamation of the surface disturbance created by the construction of the well pad.

C. CLOSED LOOP SYSTEMS: **No reserve pit will be used.**

Steel tanks are required for drilling operations: No Pits Allowed.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT:

Payment shall be made to the BLM prior to removal of any federal mineral materials from any site. Call the Las Cruces District Office at (575) 525-4337 to obtain a contract for minerals.

E. WELL PAD SURFACING:

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material will be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need.

F. ON LEASE ACCESS ROADS:

Road Egress and Ingress

The on lease access road shall be constructed to access the southwest corner of the well pad.

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material will be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the un-surfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

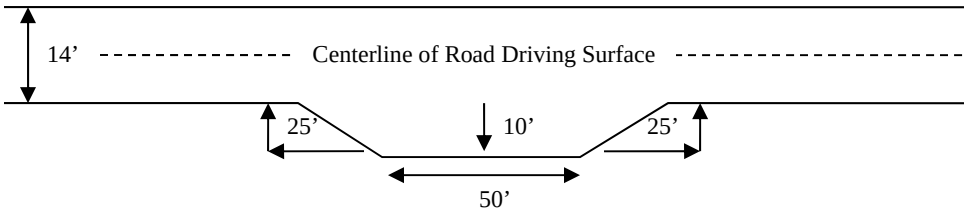
Ditching

Ditching shall be required on both sides of the road.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

Standard Turnout – Plan View

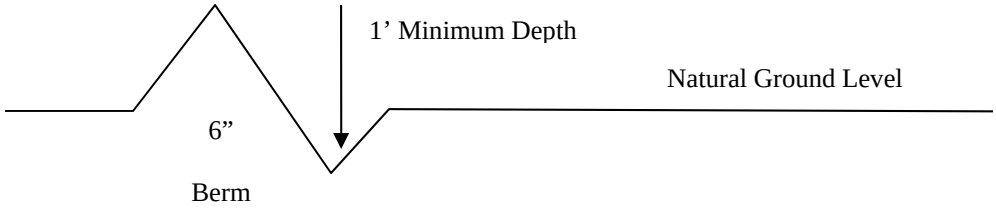


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out-sloping and in-sloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section Of Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example: On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

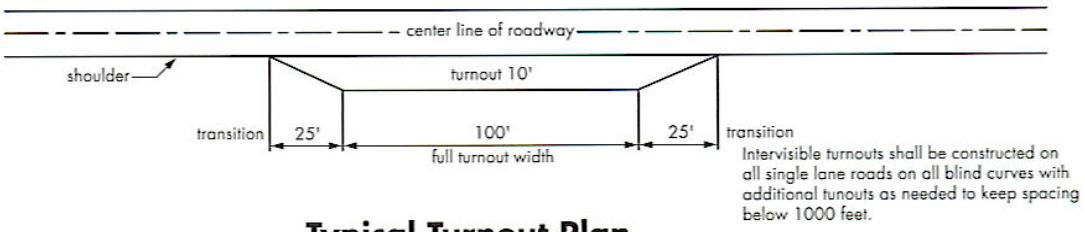
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. No locks shall be installed on gates unless prior approval is granted from the Authorized Officer.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

BLM Access

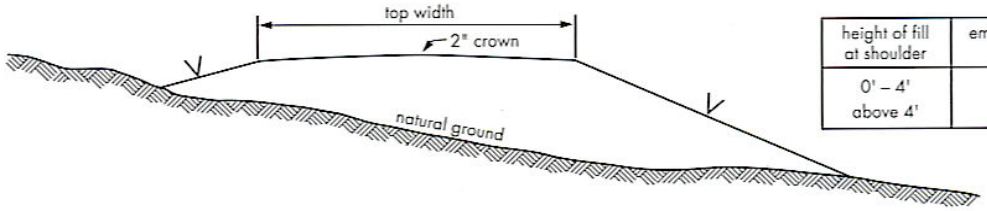
The Operator shall permit properly identified authorized representatives to enter upon, travel across and inspect lease sites and records normally kept on the lease pertinent thereto without advance notice.

Figure 1 – Cross Sections and Plans For Typical Road Sections



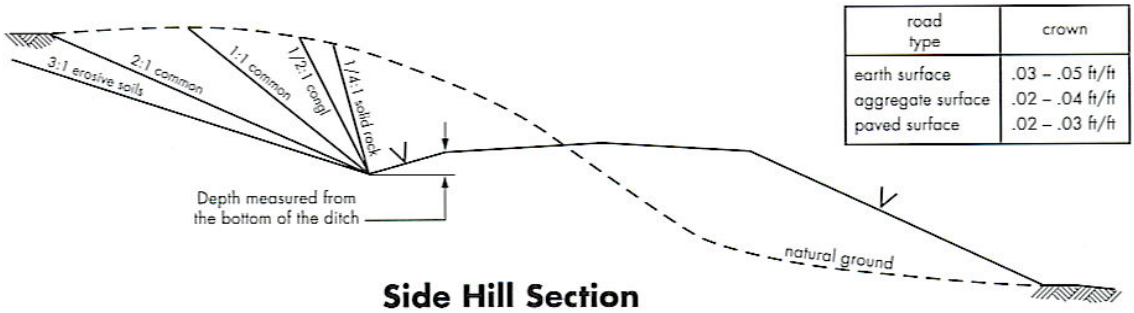
Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional tunouts as needed to keep spacing below 1000 feet.

Typical Turnout Plan



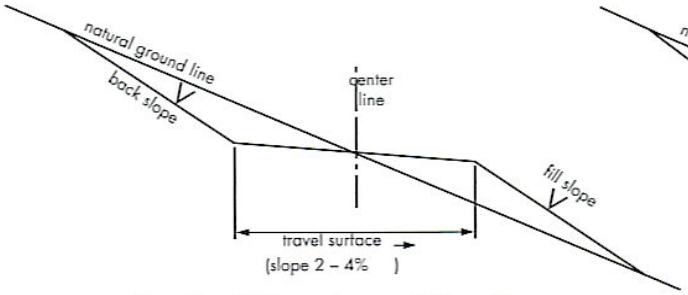
height of fill at shoulder	embankment slope
0' – 4'	3:1
above 4'	2:1

Embankment Section

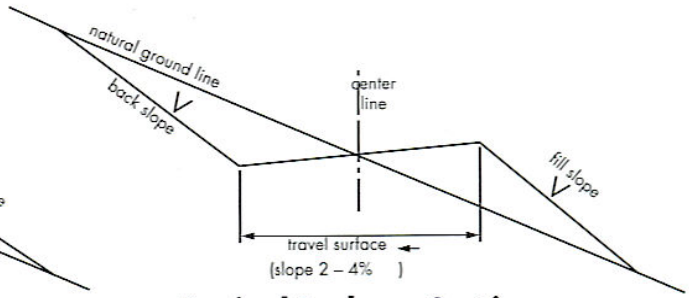


road type	crown
earth surface	.03 – .05 ft/ft
aggregate surface	.02 – .04 ft/ft
paved surface	.02 – .03 ft/ft

Side Hill Section



Typical Outsloped Section



Typical Inslope Section

V. DRILLING

(Down-Hole Requirements)

A. DRILLING OPERATIONS REQUIREMENTS

1. Call the Roswell Field Office, 2909 West Second St., Roswell, NM 88201. During office hours call (575) 627-0205 or after office hours call (575) 420-2832. Engineer on call during office hours call (575) 627-0275 or after office hours call (575) 626-5749.

2. The BLM is to be notified a minimum of 48 hours in advance for a representative to witness:

a. Spudding well

b. Setting and/or cementing of all casing strings

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

BOPE Tests

3. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

4. Include the API Number assigned to well by NMOCD on the subsequent report of setting the first casing string.

5. The operator will accurately measure the drilling rate in ft/min to set the base of the usable water protection casing string(s) opposite competent rock. The record of the drilling rate along with the caliper-gamma ray-neutron well log run to surface will be submitted to this office as well as all other logs run on the borehole 30 days from completion

6. Fresh water gel and non-toxic drilling mud shall be used to drill to the base of the usable water protection casing string(s). Any polymers used will be water based and non-toxic.

B. CASING

1. The **13-3/8** inch usable water protection casing string(s) shall be set at approximately 400 ft. in competent bedrock.

If not the operator is required to set usable water protecting casing in the next thick competent bedding (i.e. 15 to 25 ft or greater) encountered and cemented to the surface.

a. If cement does not circulate to the surface, the Roswell Field Office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin or 500 pounds compression strength, whichever is greater. (This is to include the lead cement).

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compression strength, whichever is greater.

d. If cement falls back, remedial action will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is **sufficient to circulate to the surface.** If cement does not circulate see B.1.a-d above.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is **sufficient to tie back 500 feet above the uppermost perforation in the pay zone**. If cement does not circulate, a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

4. If hard-band drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

5. All casing shall be new or reconditioned and tested casing and meet API standards for new casing. The use of reconditioned and tested casing shall be subject to approval by the authorized officer. Approval will be contingent upon the wall thickness of any casing being verified to be at least 87-1/2 per cent of the nominal wall thickness of new casing.

C. PRESSURE CONTROL

1.Before drilling below the **13-3/8** inch surface casing shoe, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve. Before drilling below the **9-5/8** inch intermediate casing shoe, the blowout preventer assembly shall consist of a minimum of One Annular Preventer, Two Ram-Type Preventers, and a Kelly Cock/Stabbing Valve.

2.Before drilling below the **13-3/8** inch surface casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **2000** psi. Before drilling below the **9-5/8** inch intermediate casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **3000** psi.

3.The BOPE shall be installed before drilling below the **13-3/8** inch surface casing and the **9-5/8** inch intermediate casing and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

a. The BLM Roswell Field office shall be notified a minimum of 48-72 hours in advance for a representative to witness the tests.

b. The tests shall be done by an independent service company. Copies of test shall be sent to the Roswell field office.

c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

d. All tests are required to be recorded on a calibrated test chart. A **copy** of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the BLM Las Cruces District Office at 1800 Marquess Street, New Mexico 88005.

e. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.

f. Testing must be done in a safe workman like manner. Hard line connections shall be required.

VI. PRODUCTION

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim re-contouring and re-vegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, Juniper Green (Standard Environmental Color Chart June 2008).

VRM Facility Requirement

Tanks not greater than fifteen-feet-high shall be used.

VII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations shall undergo “interim” reclamation in order to minimize the environmental impacts of development on other resources and uses. Earthwork for interim and final reclamation must be completed within 6 months of well completion or well plugging (weather permitting). The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During reclamation, removal of caliche is important to increasing the success of re-vegetating the site. Removed caliche may be used in road repairs, fire walls or for building other roads and locations. In addition, in order to operate the well or complete work-over operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing re-vegetated areas for production or work-over operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be re-vegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

C. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

VIII. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

a) Upon abandonment of the well and/or when the access road is no longer in service, a Notice of Intent for Final Abandonment with the proposed surface restoration procedure must be submitted for approval.
b) On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements and a copy of the release is to be submitted upon abandonment.
c) Upon abandonment of the well, all casing shall be cut-off at the base of the cellar or 3-feet below final restored ground level (whichever is deeper). The well bore shall then be covered with a metal plate at least ¼ inch thick and welded in place. The following information shall be permanently inscribed on the dry hole marker: Well name and number, the name of the operator, the lease serial number, the surveyed location (the quarter-quarter section, section, township and range or other authorized survey designation acceptable to the authorized officer; such as metes and bounds).
d) Surface Reclamation must be completed within 6 months of well plugging. If the operator proposes to modify the plans for surface reclamation approved on the APD, the operator must attach these modifications to the Subsequent Report of Plug and Abandon using Sundry Notices and Reports on Wells, Form 3160-5.

VIIII. PIPELINE PROTECTION REQUIREMENT

Precautionary measures shall be taken by the operator during construction of the access road to protect existing pipelines that the access road will cross over. An earthen berm; 2 feet high by 3 feet wide and 14 feet across the access road travel-way (2' X 3' X 14'), shall be constructed over existing pipelines. The operator shall be held responsible for any damage to existing pipelines. If the pipeline is ruptured and/or damaged the operator shall immediately cease construction operations and repair the pipeline. The operator shall be held liable for any unsafe construction operations that threaten human life and/or cause the destruction of equipment.