

BUREAU OF LAND MANAGEMENT, RIO PUERCO FIELD OFFICE

**ENVIRONMENTAL ASSESSMENT FOR
APRIL 2010 OIL AND GAS LEASE SALE
DOI-BLM-NM-A010-2010-13-EA**

FINDING OF NO SIGNIFICANT IMPACT

I have reviewed this EA and determined that the proposed action will not have any significant impacts on the human environment and that an EIS is not required. I have determined that the proposed action is in conformance with the approved land use plan. If these parcels are leased and application for development occurs, additional NEPA will be required.

Analysis determined that leasing the subject tracts could lead to eventual development which would result in small incremental increases in GHG emissions. These emissions would be mitigated by special conditions of approval developed for specific development proposals.

Decision Rationale

Oil and gas leasing is considered to be an undertaking for purposes of compliance with Section 106 of the National Historic Preservation Act. The lease sale itself causes no on the ground action; however, leasing transfers certain developmental rights to the lessee. In accordance with BLM Instruction Memorandum NM-2005-037, a staged approach is used in the identification and evaluation of cultural properties for oil and gas leasing. In general, consultation with Native American tribes to identify traditional cultural properties and sacred sites takes place when the resource management plan (RMP) is formulated or updated. If the RMP has not been updated, the Field Office determines whether Native American consultation has been sufficient. The Rio Puerco Field Office has determined that previous Native American consultation for these parcels was not sufficient and consultation with the appropriate tribes was initiated on December 16, 2009. In contrast, identification of historic properties takes place at the APD stage of lease development. Cultural resource inventories will be undertaken and impacts to archeological sites will be assessed at the APD stage. Nevertheless, Instruction Memorandum NM-2005-037 requires the Field Office to conduct a records check for each lease parcel to identify historic properties recorded or projected to fall within the area of potential effect of the lease. The records check was performed in January, 2010 [Report NM-110-2010(II)B]. The cultural heritage staff uses the information from the records check to assess the likelihood that previously recorded properties and those likely to exist within the lease can be mitigated by standard archeological and historical recordation techniques. Based on this information, the Field Office cultural heritage specialist makes a Determination of Effect for this undertaking. A determination of "No Effect" has been reached for this parcel based on the attachment of Special Cultural Resources Lease Notice NM-11-LN to the parcel. This stipulation would protect any cultural resources identified at the APD stage. It would require further Native American consultation at the APD stage.

The parcels described in Appendix 1 of the EA were reviewed by an interdisciplinary group of specialists at the Rio Puerco Field Office. The purpose of the review was to determine if the parcels were in areas open to oil and gas leasing; if leasing was in conformance with the existing land use plans; if new information had been developed which might affect leasing suitability; to ensure that appropriate lease stipulations were attached to each lease parcel; and to verify that appropriate consultations had been conducted.

BLM inventory and monitoring data files and the professional opinion of BLM endangered species specialists is that no known federally listed threatened, endangered, critical habitat or proposed species would be adversely affected by sale of these lease parcels. BLM files may have incomplete inventory data for lease proposal areas,

so site specific analysis, inventory, and necessary consultations, if required, would be done at the APD stage prior to development of the leases.

The impact to minority or low-income populations or communities was considered and no significant impact is anticipated.

Mitigation Measures/Remarks

For all parcels, Standard Oil and Gas lease stipulations and standard terms and conditions will be applied. The Special Cultural Resource Lease Notice (NM-11-LN) will be applied to mitigate impacts to cultural resources. The Timing Limit Stipulation: Important Seasonal Wildlife Habitat (RP-2 TLS) will be applied to mitigate impacts to raptors and migratory birds. The Controlled Surface Use: Torrejon Fossil Fauna ACEC (RP-11-CSU) stipulation will be applied to mitigate the impacts on important paleontological resources.

Field Office Manager: /s/ Thomas E. Gow **Date:** 2/9/2010

BUREAU OF LAND MANAGEMENT, RIO PUERCO FIELD OFFICE

**ENVIRONMENTAL ASSESSMENT FOR
APRIL 2010 OIL AND GAS LEASE SALE
DOI-BLM-NM-A010-2010-13-EA**

DECISION RECORD

It is my decision to offer for lease two parcels covering 2,532.7 acres of Federal Minerals at the Bureau of Land Management New Mexico State Office April 2010 Oil and Gas Lease Sale.

Mitigation Measures/Remarks

For all parcels, Standard Oil and Gas lease stipulations and standard terms and conditions will be applied. The Special Cultural Resource Lease Notice (NM-11-LN) will be applied to mitigate impacts to cultural resources. The Timing Limit Stipulation: Important Seasonal Wildlife Habitat (RP-2 TLS) will be applied to mitigate impacts to raptors and migratory birds. The Controlled Surface Use: Torrejon Fossil Fauna ACEC (RP-11-CSU) stipulation will be applied to mitigate the impacts on important paleontological resources.

Protests

This protest process for this Decision Record has been instituted to reconcile differences between oil and gas lease sale and NEPA regulations; and improve the opportunities for public input into agency decisions. This Decision Record for the Environmental Assessment must be protested under 43 CFR 3120.1-3. Protests must be received within 30 days of the signed decision record. You may file a protest by mail, in hardcopy form or by telefax. You may not file a protest sent to a fax number other than the fax number identified below. Any protests filed by electronic mail will be dismissed. Mailed protests must be sent to BLM New Mexico, PO Box 27115, Santa Fe, NM 87502, attn: Minerals-Protests. Faxed protests must be sent to (505) 954-2136. Hard-copy protests must be submitted to BLM New Mexico, 301 Dinosaur Trail, Santa Fe, NM 87508, attn: Minerals-Protests.

A protest must state the interest of the protesting party in the matter. The protest must also include any statement of reasons to support the protest. We will dismiss a late-filed protest or a protest filed without a statement of reasons.

If the party signing a protest is doing so on behalf of an association, partnership or corporation, the signing party must reveal the relationship between them. Before including your phone number, e-mail address, or other personal identifying information in your protest, you should be aware that your entire protest – including your personal identifying information – may be made publicly available at any time. While you can ask us in your protest to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Field Office Manager: /s/ Thomas E. Gow **Date:** 2/9/10

UNITED STATES DEPARTMENT OF INTERIOR – BUREAU OF LAND MANAGEMENT
ALBUQUERQUE DISTRICT
RIO PUERCO FIELD OFFICE
Environmental Assessment Review Sheet (revised 07-28-09)

Project Name: April 2010 Oil and Gas Lease Sale

No. _____

EA No.: DOI-BLM-NM-A010-2010-13-EA

Signing		Resource	Potential Impact		Date	Comments and/or Specific Resource Concerns
Primary	2ndary		NO (initial)	YES (initial)		
Steve F	Gretchen	Am Ind. Religious Concerns	SF		1/25/10	No responses from consultation letter
Gretchen		Cultural Resources		MSO	1/28/10	See attached determination. No impacts as a result of leasing, but further studies required at APD stage. Attach Stip #NM-11-LN.
Dave M.		Air		DEM	2/1/10	Minimal impacts possible under expected actual development.
Donna	Danny	ACEC	DD		1/201/10	
Frank	JJ	Engineering / Operations	J.F.		12/18/09	
Kent		Environmental Justice	LKH		2/3/2010	
Todd	Jack	Fire/Woodland/Forestry	n/a			
Dave M.		Floodplain		DEM	2/1/10	Mitigate for potential impact through compliance with Floodplain Exec. Order and BMP's.
Joe M.		Hazardous and Solid Waste	JMM		2/3/10	
Adam	Matt	Weeds (I/N-N Species)	MA			
Connie	Arlene	Lands &ROW	CM		1/15/10	
Joe M.	Brittany	Mineral Solid	JMM		2/3/10	
Joe M.	Brittany	Mineral Fluids	JMM		2/3/10	
Pat	Brittany	Paleontology		pmh	1/14/10	PFYC Class 5 has potential to have fossil resources, include RP 11-CSU to parcels.
Matt	Adam	Range	MA			
Donna	Danny	Recreation	DD		1/21/10	
Andrea		Riparian/Wetland Zones	AC		2/3/10	
Dave M.		Soils		DEM	2/1/10	Mitigate for potential impact through implementation of BMPs.
Dave M.		Prime & Unique Farmland	DEM		2/1/10	
Donna	Danny	Visual Resources	DD		1/21/10	
Dave M.		Water Quality Surface / Ground		DEM	2/1/10	Mitigate for potential impact through implementation of BMPs.
Donna	Danny	Wild and Scenic Rivers	DD		1/21/10	
Andrea		Wildlife		AC	2/3/10	Mitigate for potential impact through application of BMPs and RP-2 TLS to parcels for raptors & migratory birds.
Andrea		T&E Wildlife (Sp. St. Spc.)		AC	2/3/10	Mitigate for potential impact through attachment of appropriate COAs and implementation of BMPs.
Andrea		Migratory Birds		AC	2/3/10	Mitigate for potential impact through application of appropriate COAs, implementation of BMPs, and application of RP-2 TLS to parcels for raptors & migratory birds.
Andrea		T&E Plants (Special Status)	AC		2/3/10	Mitigate for potential impact through application of appropriate COAs and implementation of BMPs.
Donna	Danny	Wilderness	DD		1/21/10	
Danny	Donna	NLCS KKTR CDNT	DIR		12/18/09	
Ken		NLCS EM	n/a			

SIGNATURES: Environmental Coordinator /s/ Kent Hamilton Date 2/8/10

Assistant Field Office Manager /s/ David R. Sitzler Date 2/9/10

EA DOI-BLM-NM-A010-2010-13-EA APRIL OIL AND GAS LEASE SALE

BLM is proposing to offer 2,532.68 acres in two parcels in western Sandoval County, northwest of Johnson Trading Post (T. 20 N., R. 3 W.) at the April 2010 oil and gas lease sale. In accordance with NMSO IM 2005-037, a phased approach is used in the identification and evaluation of cultural properties for oil and gas leasing. The lease sale itself causes no on the ground action. However, leasing transfers certain developmental rights to the lessee. In accordance with BLM Instruction Memorandum NM-2005-037, a staged approach is used in the identification and evaluation of cultural properties for oil and gas leasing. In general, consultation with Native American tribes to identify traditional cultural properties and sacred sites takes place when the resource management plan (RMP) is formulated or updated. If the RMP has not been updated, the Field Office determines whether Native American consultation has been sufficient. The Rio Puerco Field Office has determined that previous Native American consultation for these parcels was not sufficient. Consultation with the appropriate tribes was initiated on December 16, 2009. Sensitive properties are not known to exist within the proposed lease parcels. Identification of historic properties takes place at the APD stage of lease development. Cultural resource inventories will be undertaken and impacts to archeological sites will be assessed at the APD stage. Nevertheless, Instruction Memorandum NM-2005-037 requires the Field Office to conduct a records check for each lease parcel to identify historic properties recorded or projected to fall within the area of potential effect of the lease. The records check was performed in January, 2010 [Report NM-110-2010(II)B]. The cultural heritage staff uses the information from the records check to assess the likelihood that previously recorded properties and those likely to exist within the lease can be mitigated by standard archeological and historical recordation techniques. Based on this information, the Field Office cultural heritage specialist makes a Determination of Effect for this undertaking. A determination of "No Effect" has been reached for these parcels based on the attachment of Special Cultural Resource Lease Notice NM-11-LN to all parcels. This stipulation would protect any cultural resources identified at the APD stage. It would require further Native American consultation at the APD stage.

Under the June 2004 protocol agreement between the BLM and the New Mexico State Historic Preservation Officer, I have determined that leasing 2,532.68 acres at the April lease sale is not an undertaking under Section 106 of the National Historic Preservation Act (Protocol VI.B.3, Appendix 11, General #1).

VI. CASE-BY-CASE REVIEW PARAMETERS

B. DETERMINATION OF UNDERTAKING

3. Appendix 11 lists those actions not considered undertakings.

Appendix 11, General #1: Leases, easements, rights-of-way, and permits which do not authorize surface disturbance.

\s\ Gretchen Obenauf

January 28, 2010

**ENVIRONMENTAL ASSESSMENT FOR
APRIL 2010 OIL AND GAS LEASE SALE
DOI-BLM-NM-A010-2010-13-EA**

1.0 Introduction

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920 (1) and the Federal Land Policy and Management Act of 1976 (2), to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

The BLM New Mexico State Office conducts a quarterly competitive lease sale to sell available oil and gas lease parcels in New Mexico, Oklahoma, Texas, and Kansas. A Notice of Competitive Lease Sale, which lists lease parcels to be offered at the auction, is published by the BLM State Office at least 45 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process. Surface management of non-BLM administered lands overlaying federal minerals is determined by BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale the BLM State Office sends a draft parcel list to each field office where the parcels are located. Field Office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing; if appropriate stipulations have been included; if new information has become available which might change any analysis conducted during the planning process; if appropriate consultations have been conducted, and if there are special resource conditions of which potential bidders should be made aware. Once the draft parcel review is completed and returned to the State Office, a list of available lease parcels and stipulations is made available to the public through a Notice of Competitive Lease Sale (NCLS). Lease sale notices are posted on the New Mexico BLM website (http://www.blm.gov/nm/st/en/prog/energy/oil_and_gas/lease_sale_notices.html). On rare occasions, additional information obtained after the publication of the NCLS may result in withdrawal of certain parcels prior to the day of the lease sale.

The following Environmental Assessment (EA) documents the review of the parcels offered in the April 2010 Competitive Oil and Gas Lease Sale that is under the administration of the Rio Puerco Field Office. It serves to verify conformance with the approved land use plan and provides the rationale for deferring or dropping parcels from a lease sale as well as providing rationale for attaching additional lease stipulations to specific parcels.

1.1 Purpose and Need

The purpose of offering parcels for competitive oil and gas leasing is to allow private individuals or companies to explore for and develop oil and gas resources for sale on public markets.

The sale of oil and gas leases is needed to meet the growing energy needs of the United States public. New Mexico is a major source of natural gas for heating and electrical energy production in the lower 48 states, especially California. New Mexico accounts for approximately 3.2% of domestic crude oil production and 7.7% of domestic natural gas production (Energy Information Administration, 2009) (3). Production of oil and gas resources on public lands contributes to decreasing the dependence of the United States on foreign energy sources, which is a BLM policy that complies with the Mining and Minerals Policy Act of 1970 (4). Continued leasing is necessary to maintain options for production as oil and gas companies seek new areas for production or attempt to develop previously inaccessible or uneconomical reserves.

1.2 Conformance with Land Use Plan and other Environmental Assessments

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this environmental assessment (EA) tiers to the information and analysis contained in the Rio Puerco Resource Management Plan, November 1986 (5), (maintained and reprinted, 1992) and the Albuquerque District Oil and Gas Plan Amendment, December 1991(6). The parcels to be offered are within an area open to oil and gas leasing. Site specific analysis as required by the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-90, 42 USC 4321 et seq.) (7) was conducted by Rio Puerco Field Office resource specialists who relied on personal knowledge of the areas involved and/or reviewed existing databases and file information to determine if appropriate stipulations had been attached to specific parcels.

It is unknown when, where, or if future well sites or roads might be proposed. Also, at the time of this review, it is unknown whether a parcel will be sold and a lease issued. Analysis of projected surface disturbance impacts, should a lease be developed, was estimated based on potential well densities listed in the Reasonable Foreseeable Development Scenario used as the basis for the PRMP/FEIS. Detailed site specific analysis of individual wells or roads would occur when a lease holder submits an Application for Permit to Drill (APD).

The Energy Policy Act of 2005 (8) categorically excludes certain oil and gas development activities from further NEPA analysis. However, excluded projects must still conform with the applicable RMP including any restrictions to development presented in the Plan.

The proposed project would not be in conflict with any local, county, or state plans.

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

Purchasers of oil and gas leases are required to obey all applicable federal, state, and local laws and regulations including obtaining all necessary permits required should lease development occur.

Rio Puerco Field Office endangered species specialists reviewed the proposed action and determined it would be in compliance with threatened and endangered species management guidelines outlined in the Biological Assessment prepared for the Albuquerque District Oil and Gas Plan Amendment. Conference with the U.S. Fish and Wildlife Service may be required to mitigate impacts to BLM Special Status Species (refer to the section 3.9 to more information) during APD processing.

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM – New Mexico State Historic Preservation Office (SHPO) protocol agreement (9), 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 (10), and other applicable BLM handbooks.

Oil and gas leasing is considered to be an undertaking for purposes of compliance with Section 106 of the National Historic Preservation Act (11). The lease sale itself causes no on the ground action; however, leasing transfers certain developmental rights to the lessee. In accordance with BLM Instruction Memorandum NM-2005-037(12), a staged approach is used in the identification and evaluation of cultural properties for oil and gas leasing. In general, consultation with Native American tribes to identify traditional cultural properties and sacred sites takes place when the resource management plan (RMP) is formulated or updated. If the RMP has not been updated, the Field Office determines whether Native American consultation has been sufficient. In contrast, identification of historic properties takes place at the APD stage of lease development. Cultural resource inventories will be undertaken and impacts to archeological sites will be assessed at the APD stage. Nevertheless, Instruction Memorandum NM-2005-037 (12) requires the Field Office to conduct a records check for each lease parcel to identify historic properties recorded or projected to fall within areas potentially affected by the lease(s). The cultural heritage staff uses the information from the records check to assess the likelihood

that previously recorded properties and those likely to exist within the lease can be mitigated by standard archeological and historical recordation techniques. Based on this information, the Field Office cultural heritage specialist makes a Determination of Effect for the undertaking.

2.0 Alternatives Including the Proposed Action

2.1 Alternative A - No Action

The BLM NEPA Handbook (H-1790-1) (13) states that for Environmental Assessments (EAs) on externally initiated proposed actions, the No Action Alternative generally means that the proposed action would not take place. In the case of a lease sale, this would mean that an expression of interest to lease (parcel nomination) would be denied or rejected.

The No Action alternative would withdraw the lease parcels from the April 2010 lease sale. The parcels would remain available for inclusion in future lease sales. Surface management would remain the same and ongoing oil and gas development would continue on surrounding federal, private, state, and Indian leases.

No mitigation measures would be required as no new oil and gas development would occur on the unleased lands. No rental or royalty payments would be made to the federal government.

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

It is an assumption that the No Action Alternative (no lease option) may result in a slight reduction in domestic production of oil and gas. This would likely result in reduced federal and state royalty income, and the potential for federal lands to be drained by wells on adjacent private or state lands. Consumption of oil and gas developed from the proposed lease parcels 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. If the BLM were to forego its leasing decisions and potential development of those minerals, the assumption is that the public's demand for the resource would not be expected to 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 leasing the subject tracts.

2.2 Alternative B - Proposed Action

The Proposed Action would be a recommendation to the State Director that BLM offer for oil and gas leasing two parcels of federal minerals covering 2,532.7 acres administered by the Rio Puerco Field Office. Standard terms and conditions as well and special stipulations listed in the 1991 RMP Amendment (6) would apply. The parcels are located in northern Sandoval County northwest of Highway 197 between Cuba and Torreon. Parcel number, size, and detailed locations are listed in Appendix 1.

Once sold, the lease purchaser has the right to use as much of the leased lands as is reasonably necessary to explore and drill for all of the oil and gas resources within the lease boundaries, subject to the stipulations attached to the lease (43 CFR 3101). The proposed parcels have been subject to prior leases. Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lease holder fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, ownership of the minerals leased reverts back to the

federal government and the lease can be resold. Drilling of wells on a lease is not permitted until the lease owner or operator meets the site specific requirements specified in 43 CFR 3162.

2.3 Alternatives Considered But Not Analyzed In Detail

The original draft parcel list sent to the field office did not include any parcels in areas closed to leasing in the RMP. Inclusion of any parcels in areas closed to leasing would not be in compliance with the land use plan; thus they would have been dropped from consideration. An alternative of offering all parcels with a no surface occupancy (NSO) stipulation was not analyzed in detail as those areas for which NSO was considered appropriate were analyzed in the PRMP/FEIS (5). No other alternatives to the proposed action were apparent which would meet the purpose and need of the proposed action.

3.0 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 relevant major resources and issues. Certain critical environmental components require analysis under BLM policy. Only those aspects of the affected environment that are potentially impacted are described in detail.

The proposed lease parcels are located in Sandoval County, New Mexico. This environmental assessment (EA) tiers to and incorporates by reference the information and analysis contained in the Rio Puerco Resource Management Plan, November 1986 (maintained and reprinted, 1992) (5) and the Albuquerque District Oil and Gas Plan Amendment, December 1991 (6).

In addition to the air quality information in the RMPs cited above, new information about GHGs and their effects on national and global climate conditions has emerged since the RMPs were prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and several trace gases 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, typically referred to as global warming.

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

3.1 Air Resources

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

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years.

3.1.1 Air Quality

At the present time, the counties that lie within the jurisdictional boundaries of the Rio Puerco Field 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 (14). Modeling conducted to date by the New Mexico Air Quality Bureau does not indicate that air quality will exceed any limits specified by the Clean Air Act in the near future.

Greenhouse gases, including carbon dioxide (CO₂) and methane (CH₄), 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 U.S. Greenhouse Gas Emissions and Sinks (15) 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.

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

3.1.2 Climate

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007) (16). 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 (17). National Academy of Sciences (2006) (18) 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. 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.

However, potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species 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.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global averages by nearly 50 percent since the 1970s (Enquist and Gori) (19). Similar to trends in national data, increases in mean winter temperatures in the Southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state.

3.2 Areas of Critical Environmental Concern (ACECs)

None of the parcels are in Areas of Critical Environmental Concern (ACECs).

3.3 Cultural Resources

Oil and gas leasing is considered to be an undertaking for purposes of compliance with Section 106 of the National Historic Preservation Act. The lease sale itself causes no on the ground action; however, leasing transfers certain developmental rights to the lessee. In accordance with BLM Instruction Memorandum NM-2005-037 (12), a staged approach is used in the identification and evaluation of cultural properties for oil and gas leasing. Identification of historic properties takes place at the APD stage of lease development. Cultural resource inventories will be undertaken and impacts to archeological sites will be assessed at the APD stage. Nevertheless, Instruction Memorandum NM-2005-037 (12) requires the Field Office to conduct a records check for each lease parcel to identify historic properties recorded or projected to fall within the area of potential effect of the lease. The records check was performed in January, 2010 [Report NM-110-2010(II)B]. The cultural heritage staff uses the information from the records check to assess the likelihood that previously recorded properties and those likely to exist within the lease can be mitigated by standard archeological and historical recordation techniques. No such sites were identified by the records check and none are expected.

3.4 Native American Religious Concerns

Under Instruction Memorandum NM-2005-037 (12), consultation with Native American tribes to identify traditional cultural properties and sacred sites takes place when the resource management plan (RMP) is formulated or updated. If the RMP has not been updated, the Field Office determines whether Native American consultation has been sufficient. The Rio Puerco Field Office has determined that previous Native American consultation for this parcel was not sufficient and consultation with the appropriate tribes was initiated on December 16, 2009. No comments were received, and no sensitive properties are known to exist within the proposed lease parcel.

3.5 Environmental Justice

Executive Order 12898 (20) requires federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety effects on minority and low-income populations. Minorities comprise a large proportion of the population residing inside the boundaries of the Rio Puerco Field Office.

3.6 Farmlands, Prime or Unique

No prime or unique farmlands occur on the lease parcels.

3.7 Floodplains

Floodplain areas are associated with streams that occur on the proposed lease parcels. Specific floodplain areas would be taken into consideration during the APD stage. BLM is required to meet the objectives of federal floodplain policy. Executive Order 11988 (21), as amended, established this policy and directs agencies to “avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practical alternative.” The objectives of avoiding development and modification of floodplains are to 1) reduce the hazard and the risk of flood loss, 2) minimize the impact of floods on human safety, health, and welfare, and 3) restore and preserve the natural and beneficial floodplain values.

3.8 Wild and Scenic Rivers

No wild and scenic rivers occur on or adjacent to the lease parcels.

3.9 Invasive, Non-Native Species

Currently there are no known state- or county-listed noxious weeds within the proposed lease sale parcels. For all actions on public lands that involve surface disturbance or rehabilitation, reasonable steps are required to prevent the introduction or spread of noxious weeds, including power washing or air blasting of construction equipment to remove soil and vegetative parts, requirements for using certified weed-free seed and weed-free hay, mulch and straw. In addition, any actions that result in the introduction or spread of invasive non-native or noxious weeds will be mitigated by standard weed management guidelines under the direction of BLM personnel.

3.10 Threatened, Endangered, and Special Status Species (Sensitive)

Under Section 7 of the Endangered Species Act of 1973 (as amended) (22), the BLM is required to consult with the U.S. Fish and Wildlife Service on any proposed action which may affect federally listed threatened or endangered species or species proposed for listing. The Bureau of Land Management Albuquerque District Office (BLM-ADO) has prepared a list of special status species to focus management efforts for mitigating potential impacts to species and associated habitats, under a multiple-use mandate. Special Status Species include those species which are: 1) federally listed as threatened or endangered, are candidates for federal listing as threatened or endangered, or species proposed for listing under the provisions of the Endangered Species Act (ESA); 2) species listed by a state in a category such as threatened or endangered implying potential endangerment or extinction; 3) those designated by each State Director as sensitive. The authority for this policy and guidance comes from the Endangered Species Act of 1973, as amended (22); Title II of the Sikes Act, as amended (23); the Federal Land Policy and Management Act (FLPMA) of 1976 (24); and Department of Interior Manual 235.1.1A, Departmental Manual 632.1.1-1.6, Secretarial Order 3206, and Departmental Manual 6840. Under BLM Special Status Species Management, “it is BLM’s policy to ensure that actions requiring authorization or approval by the Bureau are consistent with the conservation needs of special status species (state or federally listed or BLM sensitive) and do not contribute to the need to list any special status species, either under provisions of the ESA or other provisions of this policy” (BLM Manual 6840).

The proposed lease parcels contain habitat for migratory bird species, some of which may be considered Migratory Bird Species of Conservation Concern (MBSCCs) and BLM special status species. Management of migratory birds and known populations of MBSCCs and their associated habitats would be managed in accordance with IM 2008-050 to minimize adverse impacts to habitat conditions.

Federally listed threatened, endangered and candidate species that occur in Sandoval County include the Mexican spotted owl, southwestern willow flycatcher, black-footed ferret, New Mexico meadow jumping mouse, Rio Grande cutthroat trout, yellow-billed cuckoo and Rio Grande silvery minnow. The lease area does

not provide habitat for the Mexican spotted owl, southwestern willow flycatcher, Rio Grande cutthroat trout, yellow-billed cuckoo and Rio Grande silvery minnow. The black-footed ferret has been extirpated in New Mexico. The New Mexico meadow jumping mouse is found along stream beds and riparian areas, and thus it is not likely to occur in the lease area. However, additional surveys and habitat assessments could be required should leasing development occur. There are no federally listed threatened, endangered, or candidate plant species in Sandoval County.

It is not known if special status species, or habitat, designated by the State of New Mexico or the BLM New Mexico State Director are present within the lease parcels. Further biological surveying at the APD stage may be necessary.

3.11 Wastes, Hazardous or Solid

The Resource Conservation and Recovery Act (RCRA) of 1976 (25) established a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. U.S. Environmental Protection Agency (EPA) regulations define solid wastes as any “discarded materials” subject to a number of exclusions. On July 6, 1988, EPA determined that oil and gas exploration, development and production wastes would not be regulated as hazardous wastes under RCRA. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980 (26) deals with the release of hazardous substances (spillage, leaking, dumping, accumulation, etc.) or threat of a release of hazardous substances into the environment. Despite many oil and gas constituent wastes being exempt from hazardous waste regulations, certain RCRA-exempt contaminants could be subject to regulations as hazardous substances under CERCLA. Civil and criminal penalties may be imposed if the hazardous waste is not managed in a safe manner and according to regulations. The State of New Mexico Oil Conservation Division (NMOCD) administers hazardous waste regulations for oil and gas activities in New Mexico. No hazardous or solid waste materials are known to be present on the proposed lease parcels.

3.12 Water Quality – Surface/Ground

No surface water or ground water problems have been identified on the proposed leased parcels. Sandoval County generally relies on groundwater for drinking water, stock watering, agricultural, and industrial uses.

3.13 Wetlands /Riparian Zones

No wetlands or riparian zones with permanent water are known to be present on the proposed parcels. Riparian areas in the form of scattered intermittent ponded areas or small playas with ephemeral water occur throughout the area, which are used as secondary livestock water and are used by aquatic bird species seasonally.

3.14 Soils

A brief characterization of the soils that are present on the proposed lease parcels are presented in the following table, as mapped and described by the USDA Natural Resources Conservation Service (NRCS). [Table is on following page.]

Soil Map Unit Symbol and Name	Soil Survey Name	Water Erosion Potential (dominant soil component)	Landform
Pf - Penistaja fine sandy loam	Cabazon Area, New Mexico	Low	Mesas, alluvial fans, fan remnants, 0-5% slopes
Ak - Alkali alluvial land	“	Very low	Drainageways, alluvial fans, floodplains, 0-3% slopes
Rk - Ravola silty clay loam, alkali, and gullied land	“	Moderate	Arroyos, terraces, flood plains, 2-5% slopes
Ng – Navajo clay and gullied land	“	Very low	Terraces, flood plains, 0-3% slopes
Bd - Berent loamy fine sand	“	Low	Mesas, 0-5% slopes

3.15 Watershed – Hydrology

Surface water drainage of the Sandoval County parcels is to the Rio Puerco and Arroyo Chico watersheds that are tributary the Rio Grande. Runoff occurs mainly in response to summer monsoonal rainfall, although periods of snowmelt runoff can occur with sufficient snowfall amounts. Due to the regional climate of generally wet winters and summers, surface water gages in the region show that mean monthly discharges are generally the highest in July through September, coinciding with the summer monsoon season, and the lowest in December and January after the fall dry period. Most annual maximum peak discharges and associated flooding concerns occur also in the late summer through early fall.

3.16 Mineral Resources

It is the policy of the BLM to make mineral resources available for disposal and to encourage development of these resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable prices. At the same time, the BLM strives to assure that mineral development is carried out in a manner which minimizes environmental damage and provides for the reclamation of the lands affected.

Currently there are 112 oil and gas leases covering approximately 107,763 acres in the Rio Puerco Field Office. These leases have a total of 170 producing, abandoned, and shut-in wells. Approximately 260 acres, or 0.24% of the leased area, are disturbed. If a parcel is leased and developed through drilling, a separate environmental document would be prepared. If full field development were to occur, additional NEPA analysis addressing cumulative impacts would be required.

3.17 Livestock Grazing

The land within the nominated parcels is within grazing allotments administered by the BLM. All the allotments have year round grazing permits. The allotments have retention dams, water troughs, and fences for management and distribution of livestock.

3.18 Wild Horse and Burros

There are no wild horses or burros in the Rio Puerco Field Office.

3.19 Vegetation

The parcels are in the Great Basin Foothill-Piedmont Grassland, Lowland/Swale Grassland, and Broadleaf Deciduous Desert vegetation communities, which are part of the Southern Desert Basin, Plains, and Mountain vegetation type.

3.20 Wildlife

The proposed lease sale area provides habitat for a wide variety of wildlife species. Large ungulates in the area include mule deer and elk. Large predators include cougars and an occasional black bear. Smaller mammals include coyotes, bobcats, gray foxes, jackrabbits, cottontail rabbits, rock squirrels, woodrats, porcupines and a variety of bats and smaller rodent species. Reptiles include bullsnakes, rattlesnakes, whiptail lizards, and fence lizards. Bird species in the area include golden eagles, western bluebirds, great horned owls, piñon jays, mourning doves, Gambel's quail, scaled quail, Mearn's quail, red-tailed hawks, ferruginous hawks, kestrels, and a variety of migratory birds. Habitat quality is fair to good for wildlife.

Eagle Mesa and Fork Rock Mesa are within approximately two miles of the project area. These areas are likely to house raptors and other migratory birds. Although the action of the lease sale will not directly affect these faunal species, the action of drilling has the potential to. If drilling occurs, timing stipulations must be set to avoid drilling during important nesting and migratory periods.

3.21 Paleontology

The parcels are located in a Class 5 Potential Fossil Yield Classification. Class 5 PFYC areas have the potential to produce important fossil resources. At the development stage of the lease, the action could impact important fossil resources.

3.22 Visual Resources

The parcels are in Visual Resource Management (VRM) Class IV. The area is tan-colored grassland interspersed with olive drab-colored juniper patches, covering buff to dark sandstones and dark-grey to black basaltic features. Some features, such as mesas, protrude from and otherwise smooth- to medium-textured, flat to rolling landscape.

3.23 Recreation/Wilderness

The parcels are located in an area that experiences low impact dispersed use, primarily hunting. There is no designated wilderness or wilderness study areas (WSAs) within or near the proposed lease parcels.

3.24 Public Health and Safety

Leasing of the parcels analyzed in this EA would present no new or unusual health or safety issues not covered by existing state and federal laws and regulations.

3.25 Cave/Karst Potential

The lease parcels offered are not in an area listed in the 1991 RMP Amendment (6) as having Karst Potential.

3.26 Lands and Realty

According to BLM's land records, there are no authorized right-of-ways located within the parcels proposed for leasing.

4.0 Environmental Consequences and Proposed Mitigation Measures

No Action Alternative

Under the No Action Alternative, the proposed parcels would not be leased. There would be no new impacts from oil and gas production on the parcel lands. Oil and gas development of federal, state, private, and Indian minerals would continue on the lands surrounding the parcels. No additional natural gas or crude oil would enter the public markets and no royalties would accrue to the federal or state treasuries. The No Action Alternative would result in the continuation of the current land and resource uses on the parcels. No further analysis of the No Action alternative is presented in the following sections.

Alternative B

The act of leasing the parcels would, by itself, have no impact on any resources in the area administrated by the Rio Puerco Field Office. Standard terms and conditions as well as special stipulations NM-11-LN would apply to the lease parcels. All impacts would link to as yet undetermined future levels of lease development. The fact that the lease parcels have been subject to previous leasing and were not developed suggests that they have low potential for extensive development. However, new technologies and economic factors could make development viable.

If the lease parcels are developed, short-term impacts would be stabilized or mitigated rapidly (within 5 years) and long-term impacts are those that would substantially remain for more than 5 years.

4.1 Air Resources

4.1.1 Direct and Indirect Effects

Air Quality

Leasing the subject parcels would have no direct impacts on air quality. Any potential effects on air quality from sale of lease parcels would occur at such time that the leases were developed. Over the last 10 years, the leasing of federal oil and gas mineral estate in the Rio Puerco Field Office has resulted in 8 wells being drilled on those federal leases.

Potential impacts of development could include increased airborne 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 GHGs and volatile organic compounds during drilling or production activities. The amount of increased emissions cannot be quantified at this time

since it is unknown how many wells might be drilled, the types of equipment needed if a well were to be completed successfully (e.g., compressor, separator, dehydrator), or what technologies may be employed by a given company for drilling any new wells. The degree of impact will also vary according to the characteristics of the geologic formations from which production occurs.

The reasonable and foreseeable development scenario for the 1991 Albuquerque District RMP Oil and Gas Amendment (6) estimated 3 to 5 wells would be drilled annually for federal minerals.

Current APD permitting trends within the field office confirm that these assumptions are still accurate. This level of exploration and production would contribute an 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 the proposed lease tracts would not have a measurable effect on climate change.

Climate

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

4.1.2 Mitigation

The EPA's inventory data breaks down the total US sources of GHG gases by major categories that include "Natural Gas Systems" and "Petroleum Systems." The inventory lists the contributions of natural gas and petroleum systems to total CO₂ and CH₄ emissions (natural gas and petroleum systems do not produce noteworthy 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. Petroleum systems sub-activities include production field operations, crude oil transportation, and crude oil refining. Within the petroleum systems emission categories, the BLM has authority to regulate production field operations.

The 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 revegetate areas of the pad not required for production facilities to reduce the amount of dust from the pads.

The BLM encourages industry to incorporate and implement "Best Management Practices" (BMPs), which are designed to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field production and operations. Typical measures include: adherence to BLM's Notice to Lessees' (NTL) 4(a) concerning the venting and flaring of gas on federal leases; for natural gas

emissions that cannot be economically recovered, flare hydrocarbon 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; collocate wells and production facilities to reduce new surface disturbance; implementation of directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores; require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and perform interim reclamation to revegetate areas of the pad not required for production facilities and to reduce the amount of dust from the pads.

The EPA data show that improved practices and technology and changing economics have reduced emissions from oil and gas exploration and development (Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006) (15). 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 (27). The Albuquerque 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 Areas of Critical Environmental Concern

4.2.1 Direct and Indirect Effects

Sale of the proposed lease parcels would have no effect on the management goals for any ACECs.

4.2.2 Potential Mitigation

No mitigation is necessary because the nominated parcels are not within or adjacent to an ACEC.

4.3 Cultural Resources

4.3.1 Direct and Indirect Effects

The lease sale itself causes no on the ground action; however, leasing transfers certain developmental rights to the lessee. In accordance with BLM Instruction Memorandum NM-2005-037 (12), a staged approach is used in the identification and evaluation of cultural properties for oil and gas leasing. IM NM-2005-037 (12) requires the Field Office to conduct a records check for each proposed lease parcel to identify historic properties recorded or projected to fall within the area of potential effect of the lease. The records check was performed in January, 2010 [Report NM-110-2010(II)B]. The cultural heritage staff uses the information from the records check to assess the likelihood that previously recorded properties and those likely to exist within the lease can be mitigated by standard archeological and historical recordation techniques. Based on this information, the Field Office cultural heritage specialist makes a Determination of Effect for the undertaking. A determination of "No Effect" has been reached for these parcels based on the attachment of Special Cultural Resources Lease Notice NM-11-LN to all parcels. This stipulation would protect any cultural resources identified at the APD stage.

Identification of historic properties takes place at the APD stage of lease development since direct and indirect effects cannot be assessed without analysis of site-specific development proposals. Cultural resource inventories will be undertaken and impacts to archeological sites will be assessed at the APD stage. Potential impacts at that stage could include increased human activity and possibility of illegal removal of, or damage to, cultural resources. The increased human activity in the area increases the possibility of irretrievable loss of information pertaining to the heritage of the project region. Conversely, the benefits to heritage resources derived from the future development are the cultural resources surveys that add to literature, information, and knowledge of cultural resources.

4.3.2 Potential Mitigation

Specific mitigation measures, including, but not limited to, possible site avoidance or excavation and data recovery would have to be determined when site-specific development proposals are received. Special Cultural Resources Lease Notice NM-11-LN will be attached to all lease parcels to protect any cultural resources identified at the APD stage.

4.4 Native American Religious Concerns

4.4.1 Direct and Indirect Effects

Consultation with the appropriate tribes was initiated on December 16, 2009. No comments were received. Sensitive properties are not known to exist within the proposed lease parcel. No direct or indirect effects from leasing the parcel are predicted based on existing information. Use of Special Cultural Resources Lease Notice NM-11-LN would help ensure that new information is incorporated into lease development. Additional Native American consultation will be initiated at the APD stage of development.

4.4.2 Potential Mitigation

Special Cultural Resources Lease Notice NM-11-LN will be attached. No other mitigation is necessary at the leasing stage. Use of NM-11-LN assures that additional Native American consultation can be performed at the APD stage and that sensitive properties can be avoided.

4.5 Environmental Justice

4.5.1 Direct and Indirect Effects

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

4.5.2 Potential Mitigation

Mitigation of potential negative effects, such as noise and surface disturbance is addressed in current regulations. Should drilling occur, specific mitigation measures, such as noise abatement, will be considered at the APD stage.

4.6 Farmlands, Prime or Unique

4.6.1 Direct and Indirect Effects

There are no prime or unique farmlands in the proposed leasing areas.

4.6.2 Potential Mitigation

No mitigation is needed.

4.7 Floodplains

4.7.1 Direct and Indirect Effects

Potential impacts of lease development may include alteration of natural floodplain areas by surface disturbance or placement of oil and gas facilities. New access roads may be constructed which cross floodplains.

4.7.2 Potential Mitigation

Specific mitigation measures to avoid potential adverse impacts to floodplains that may exist in the proposed lease parcel would be taken into consideration during the APD stage. Generally, flood prone areas would be avoided when determining the placement of oil and gas infrastructure. Any new access roads crossing floodplains would be designed to minimize impact to natural floodplain functions. The objectives of avoiding development and modification of floodplains are to 1) reduce the hazard and the risk of flood loss, 2) minimize the impact of floods on human safety, health, and welfare, and 3) restore and preserve the natural and beneficial floodplain values.

4.8 Wild and Scenic Rivers

4.8.1 Direct and Indirect Effects

No direct or indirect effects will occur since no wild and scenic rivers are present.

4.8.2 Potential Mitigation Measures

No mitigation is needed.

4.9 Invasive, Non-Native Species

4.9.1 Direct and Indirect Effects

Any surface disturbance can increase the possibility of establishment of new populations of invasive non-native species. The likelihood of this happening at the APD stage cannot be predicted with existing information. Minimizing the potential for introduction of weeds into developed site is a primary objective. Power washing or air blasting construction equipment and using weed free seed and weed-free vegetative reclamation products have proven effective in protecting sites from weed introduction. At the APD stage, BLM requirements for use of weed control strategies would minimize the potential for spread of these species.

4.9.2 Potential Mitigation

Construction equipment will be power washed or air blasted to remove soils and vegetative materials on the equipment prior to entering the project sites. Certified noxious weed-free seed will be used in any reclamation area. Weed-free mulches will be utilized. Specific site plans will be developed at APD stage. Best Management Practices would be incorporated into Conditions of Approval. Should noxious or invasive non-native weeds become established or spread due to the proposed action, operators will be required to eliminate the population using standard weed management practices under the direction of BLM personnel.

4.10 Threatened, Endangered, or Special Status Species (Sensitive)

4.10.1 Direct and Indirect Effects

Although the lease sale itself has no direct effects on the sensitive biota of the area, in the event the lease is sold and drilling is permitted, a survey for other sensitive species (BLM Sensitive and Federal Species of Concern) on the project site must be conducted. Oil and gas development would have a significant impact on any special status plant species directly in the leased area to be cleared of vegetation. It will also directly affect any burrowing animal populations on the project site due to complete habitat removal. Bird nesting sites and migratory periods will also be affected and must be taken into account at the APD stage. Impacts associated with the sale of the proposed leases may result in further habitat degradation and fragmentation, which may force a decreased use of or complete abandonment of otherwise suitable habitat.

4.10.2 Potential Mitigation

Site-specific biological resource surveys would be required at the APD stage and, depending on location and nature of the proposed development and results of surveys, additional USFWS consultation could be required. In particular surveys for the New Mexico meadow jumping mouse and other sensitive species (BLM Sensitive and Federal Species of Concern) should occur prior to lease development. Current status of special status species may change through time, elevating concerns for them, and their listing with the BLM, State of New Mexico, and/or USFWS. If special status species or habitat is found within the proposed drilling activity area, appropriate Conditions of Approval will be attached to the Surface Use Plan of Operations submitted by the operator with the APD.

4.11 Wastes, Hazardous or Solid

The lease parcels fall 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.

4.11.1 Direct and Indirect Effects

While the act of leasing the parcels would produce no impacts, subsequent development of the leases would lead to surface disturbance (from below).

The direct impact would follow a lease sale project when solid waste is discarded and contaminates the land surface either by solid, semi-solid, liquid, or contained gaseous material. The indirect impact is the Environmental Protection Agency (EPA) definition of solid wastes that have been designated as exempt and nonexempt and if it is hazardous, civil and criminal penalties may be imposed if the waste is not managed in a safe manner, and according to regulations.

4.11.2 Potential Mitigation

The lease sale parcels are regulated under the Resource Conservation and Recovery Act (RCRA) Subtitle C regulations (25), which are extremely stringent, as well as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (26) that provides for the exclusion of petroleum, including crude oil or any fraction thereof from the definition of hazardous substance, pollutant, or contaminant. The mitigation would include the stringent regulation of waste containment within the project areas.

4.12 Water Quality: Surface and Groundwater

4.12.1 Direct and Indirect Effects

While the act of leasing the parcels would produce no impacts, subsequent development of the lease would lead to surface disturbance from the construction of well pads, access roads, pipelines, and powerlines and could result in degradation of surface water quality and groundwater quality from non-point source pollution, especially from potentially increased soil erosion and sedimentation.

Potential direct impacts would chiefly be brought about by soil disturbance due to construction of well pads, access roads, pipelines, and power lines, and would include increased surface water runoff, erosion, off-site sedimentation and dissolved constituents (salt loading) to downstream waters. Such hydrologic effects may cause changes in downstream channel morphology such as bed and bank erosion or accretion. The magnitude of these potential impacts to water resources would depend on the proximity of the disturbance to the 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 would likely be greatest shortly after the start of construction activities and would decrease in time due to proper implementation of Best Management Practices (BMPs) that would include proper design of facilities along with effective temporary stabilization measures that would promote permanent natural vegetative stabilization and reclamation of disturbed areas. Construction activities would occur over a relatively short period, and therefore the majority of the disturbance would be evident but short lived. Impacts to surface water quality would be managed (minimized) through the implementation, monitoring, and necessary adjustment of BMPs prescribed. However, short-term and minor impacts may occur during storm flow events.

Petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and ground water quality. Authorization of development projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

4.12.2 Potential Mitigation

Potential effects would depend on site-specific location of future development and cannot be predicted or quantified at the leasing stage. General conditions of approval at the APD stage will specify Best Management Practices that will include reclamation of plant communities and water control measures to prevent and limit erosion and sedimentation, such as road and pad location and design, culverts, and silt traps. Existing regulations require operators ensure an adequate casing program is designed to protect ground water from contamination.

The use of lined reserve pits would reduce or eliminate seepage of drilling fluid into the soil and prevent it from eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soils onsite, or offsite, and could potentially impact surface and groundwater resources in the long term. The casing and cementing requirements imposed on proposed wells would reduce or eliminate the potential for groundwater contamination from drilling mud and other surface sources.

4.13 Wetlands/Riparian Zones

4.13.1 Direct and Indirect Effects

The proposed lease sale parcels do not contain any known permanent or protected riparian areas/riparian habitat. Based on existing available information, development of the parcels would not have adverse affects on riparian habitat, but the amount and location of direct and indirect effects cannot be predicted until the site specific APD stage of development.

4.13.2 Potential Mitigation

No mitigation is needed.

4.14 Soils

The magnitude and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development. Soils vary in their suitability for use as road fill and road beds. Road design to BLM standards and use of suitable fill would foster road stability and mitigate erosion and sedimentation. Increased traffic in the area with development could cause increased deterioration that could make travel by various road users difficult and worsen the loss of soil due to erosion by wind and/or water. Maintenance standards for constructed roads would also be specified in the APD stage.

4.14.1 Direct and Indirect Effects

While the act of leasing a tract would produce no impacts, subsequent development of the lease would physically disturb the topsoil and would expose the substratum soil on subsequent project areas. Direct impacts resulting from the construction of well pads, access roads, and reserve pits include removal of vegetation, exposure of the soil, mixing of horizons, compaction, loss of topsoil productivity, and susceptibility to wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion, with the 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 sites, access roads, gas pipelines, and facilities.

Contamination of soil from drilling and production wastes mixed into soil or spilled on the soil 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 could occur when heavy precipitation causes water erosion damage. When water saturated segment(s) of 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 access roads.

4.14.2 Potential Mitigation

As described in Conditions of Approval at the APD stage, operators could stockpile the topsoil from the surface of well pads which would be used for surface reclamation of the well pads. If the well produces, the top soil can be used for interim reclamation of the areas of the well pad not in use. If the well is a

dry hole, the soil can be used for immediate reclamation. The soil should not be stockpiled for more than one year. Soil stockpiling and re-spreading should be carried out under the advisement of BLM personnel. The impact to the soil would be remedied upon reclamation of well pads when the stockpiled soil that was specifically conserved to establish a seed bed is spread over well pads and vegetation re-establishes.

Reserve pits could be recontoured and reseeded as described in Conditions of Approval at the APD stage. Upon abandonment of 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 Conditions of Approval at the APD stage.

An orderly system of road locations and road construction requirements (including regular maintenance) would alleviate potential impacts to the environment from the development of access roads. For the purpose of protecting slopes or fragile soils, surface disturbance will not be allowed on slopes over 30 percent.

4.15 Watershed - Hydrology

4.15.1 Direct and Indirect Effects

While the act of leasing a parcel would produce no impacts, subsequent development of the lease would result in long term and short term changes to the hydrologic regime. Because of reduced water infiltration rates on well pads and roads, surface flows would move more quickly to stream channels, causing peak flow to occur earlier and to be higher than normal. Such an increase runoff volumes and magnitude of the peak flow has the potential cause bank erosion, channel widening, downward incision, and disconnection from the floodplain. These potential effects would be dependent on the density of pad and road development within a watershed. Low density development may only affect the smaller tributary streams but not the larger ones, whereas more concentrated development within a watershed or catchment would tend to create potential effects further downstream to larger channels. Increased runoff volumes of water to streams, arroyos, and washes may actually increase groundwater recharge volumes.

Long-term direct and indirect impacts to the watershed and hydrology would continue for the life of wells and would decrease once all well pads and road surfacing material has been removed and reclamation of well pads, access roads, pipelines, and powerlines has taken place. Short-term direct and indirect impacts to the watershed and hydrology from access roads that are not surfaced with material would occur and would likely decrease in time due to reclamation efforts.

4.15.2 Potential Mitigation

An orderly system of road locations and road construction requirements (including regular maintenance) would alleviate potential impacts to the environment from the development of access roads. General conditions of approval at the APD stage will specify Best Management Practices and include reclamation of plant communities and use of erosion control measures, water control measures, and sedimentation control measures, such as road and pad location and design, culverts, and silt traps to reduce erosion and sediment flow. Roads that are determined to be year-round use service roads will have short and long term impacts to the water shed and hydrology. Hardening of these roads and use of hardened low level crossings is highly recommended. 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.

4.16 Mineral Resources

4.16.1 Direct and Indirect Effects

The amount and location of direct and indirect effects cannot be predicted until the site specific APD stage of development. The lease parcels do not appear to present any conflict with the development of other mineral resources such as coal, sand, or gravel.

4.16.2 Potential Mitigation

Evaluation of mitigation measures for effects on mineral resources is deferred to the site specific APD stage of development.

4.17 Livestock Grazing

4.17.1 Direct and Indirect Effects

The amount and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development. Rangeland improvements can be impacted by road and pad development. In the proposed lease areas there are a number of retention dams and water troughs. In addition there are playas with seasonal water that are secondary livestock water areas. Placement of facilities close to water could increase potential for contamination of the water site during construction and operations. In addition closeness to water can increase potential for stock to use the pad areas for resting, and rubbing and potential exposure to ethylene glycol storage and spills.

4.17.2 Potential Mitigation

At the site-specific APD stage of development, watering facilities, playas and improvements will be avoided. Roads and pads will be planned so as to prevent sediment loads and contaminants. Cattle guards will be installed on fence lines. BLM currently consults with grazing permittees on a site-by-site basis as part of the APD process. Best Management Practices would be incorporated into the Conditions of Approval.

4.18 Wild Horse and Burros

4.18.1 Direct and Indirect Effects

There are no wild horses or burros in the lease area, so no effects would occur.

4.18.2 Potential Mitigation

No mitigation is needed.

4.19 Vegetation

4.19.1 Direct and Indirect Effects

The amount and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development.

4.19.2 Potential Mitigation

Evaluation of mitigation measures for the effect on vegetation is deferred to the site specific APD stage of development. Best Management Practices would be incorporated into the Conditions of Approval.

4.20 Wildlife

4.20.1 Direct and Indirect Effects

Although the direct and indirect effects on specific wildlife species cannot be determined until site-specific project proposals are analyzed at the APD stage of development, the parcels offered are located in close proximity to Fork Rock Mesa and Eagle Mesa, which provide habitat for raptors and migratory birds. If these lease parcels are developed, the resulting disturbance and noise would have a negative impact on these species, particularly during nesting or migration periods.

4.20.2 Potential Mitigation

To mitigate the impacts of lease development on raptors and migratory birds, the Timing Limit Stipulation: Important Seasonal Wildlife Habitat (RP-2 TLS) will be applied to these leases. In addition, site-specific wildlife resource surveys could be required at the APD stage. If a proposed activity is foreseen to have an adverse impact on other wildlife habitat, appropriate Conditions of Approval will be attached to the APD. Examples of Conditions of Approval that protect wildlife resources include fencing to exclude wildlife, noise abatement, and timing stipulations to protect bird nesting sites or seasonal game habitat.

4.21 Paleontology

4.21.1 Direct and Indirect Effects

Although the amount and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development, the parcels offered are in a PFYC Class 5 the geological formations present have produced important fossils.

4.21.2 Potential Mitigation

Evaluation of mitigation measures for effects on paleontological resources is deferred to the site specific APD stage of development. Best Management Practices would be incorporated into Conditions of Approval and protective stipulations would be attached to the lease. Stipulation RP-11-CSU will be applied to protect potential fossil resources on this parcel.

4.22 Visual Resources

Visual resource management is broken into four VRM classes. In the tracts proposed for leasing only VRM Class IV is represented.

4.22.1 Direct and Indirect Effects

The VRM Class IV objective is to provide for management activities which require major modification of the existing landscape character. Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements. 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 area's characteristic landscape and vegetation, which have flat, horizontal to slightly rolling form and line. The construction of access roads, well pads and other ancillary facilities would slightly modify the existing visual resources. Through color manipulation, for example, by painting well facilities with a color determined by the Authorized Officer at the time of development to blend with the rolling to flat vegetative and/or landform setting, developments are expected to favorably blend with the form, line, color and texture of the existing landscape.

4.22.2 Potential Mitigation

For VRM Class IV, all facilities, including meter buildings, would be painted a color determined by the Authorized Officer at the time of development to blend with the rolling to flat vegetative and/or landform setting. Cumulative adverse visual impacts can be avoided by gradually moving into a more appropriate vegetative/ landform setting color scheme.

4.23 Recreation/Wilderness

Evaluation of mitigation measures for effects on recreation resources is deferred to the site specific APD stage of development. Best Management Practices would be incorporated into Conditions of Approval and protective stipulations would be attached to the lease. Potential noise impacts as a direct result of development will be short term. Long term noise impacts will be as a result of hydrocarbon development and transportation by truck compressors, pump jacks.

4.23.1 Direct and Indirect Effects

Potential effects could occur to dispersed recreation activities such as big game hunting in small areas but these effects cannot be determined until site-specific development proposals are received at the APD stage. There would be no effects to wilderness or wilderness study areas since none are nearby.

4.23.2 Potential Mitigation

Mitigation of the effects of noise would be achieved by requiring all facilities using internal combustion engines to have exhaust mufflers, sound barrier walls or earthen mound to quiet noise or direction of impacts. Cumulative adverse noise impacts can be avoided by moving facilities behind hills and away from ACEC, or other potential high use recreation areas. Further evaluation of mitigation measures for effects on recreation and wilderness resources is deferred to site-specific requirements determined at the APD stage.

4.24 Public Health and Safety

4.24.1 Direct and Indirect Effects

Specific potential effects cannot be determined until site-specific development proposals are received at the APD stage. Based on the history of oil and gas development, overall effects of leasing less than one-half percent of the lands open to oil and gas development should result in negligible direct and indirect effects.

4.24.2 Potential Mitigation

Evaluation of mitigation measures for the effect on public health and safety is deferred to site-specific requirements determined at the APD stage. If a parcel is developed near areas of human habitation,

mitigation measures such as fencing, sound barriers, and sign placement can be utilized to reduce the impact on nearby residents.

4.25 Cave/Karst Potential

4.25.1 Direct and Indirect Effects

There is no potential for caves and karsts on these parcels.

4.25.2 Potential Mitigation

No mitigation is necessary because there are no potential caves or karsts on these parcels.

4.26 Lands and Realty

The level and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development. Existing ROWs can be impacted by road and pad development. To avoid impacts to existing uses, BLM would contact the ROW holders and notify them of the site-specific APD stage of development. As a result of the environmental analysis of the proposed site-specific APDs, location and materials used for pads may be adjusted to minimize effects.

4.27 Cumulative Effects

This environmental assessment (EA) tiers to and incorporates by reference the information and analysis contained in the Resource Management Plans. The RMPs designated federal minerals as open for continued oil and gas development and leasing under Standard Terms and Conditions and described specific stipulations that would be attached to new leases offered in certain areas. The parcels to be offered in the April 2010 sale are within areas open to oil and gas leasing.

Currently there are 112 oil and gas leases covering approximately 107,763 acres in the Rio Puerco Field Office. These leases have a total of 170 producing, abandoned, and shut-in wells. Approximately 260 acres, or 0.24% of the leased area, are disturbed. If a parcel is leased and developed through drilling, a separate environmental document would be prepared. If full field development were to occur, additional NEPA analysis addressing cumulative impacts would be required. Impacts from development would remain on the landscape until final abandonment and reclamation of facilities occurs at some unknown time in the future. Ongoing mitigation and reclamation procedures would continue to be used to limit effects.

It is unknown when, where or if future well sites or roads might be proposed within the proposed lease sale areas. Also, at the time of this review, it is unknown whether a parcel will be sold and a lease even issued. Analysis of projected surface disturbance impacts, should a lease be developed, was estimated based on potential well densities listed in the Reasonable Foreseeable Development Scenario used as the basis for the 1991 PRMP Amendment/FEIS (6). Detailed site-specific analysis of individual wells or roads would occur when a lease holder submits an Application for Permit to Drill (APD).

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. An assumption, however, can be made that leasing the proposed tracts may contribute to drilling new wells. (Refer to limitations of projecting actual number of wells as a result of the proposed action under 4.16.1: Direct and Indirect Effects)

The New Mexico Greenhouse Gas Inventory and Reference Case Projection 1990-2020 ('Inventory') (30) estimates that approximately 19.3 million metric tons of both CO₂ and CH₄ emissions were produced in 2000 by oil and natural gas production, processing, transmission, and distribution. Of the 19.6 million metric tons, approximately 17.3 million metric tons may be attributed to natural gas activities and 2.3 million metric tons can be attributed to oil production. As of 2002, the Inventory indicates that there were approximately 23,196 oil wells and 27,778 gas wells in the state.

This average number of gas wells drilled annually in the Field Offices 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 a small, incremental contribution to the total regional and global GHG emission levels. This small incremental contribution to global GHG gases cannot be translated into incremental 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.

There has been no change in the basic assumptions or projections described in the 1991 PRMP Amendment/FEIS analysis except in regard to air quality. Additional monitoring and modeling conducted by the State of New Mexico Air Quality Bureau since completion of the PRMP/FEIS indicate that projected development is unlikely to elevate ozone concentrations to significant levels for the foreseeable future (see New Mexico Environment Department website for more details:

<http://www.nmenv.state.nm.us/aqb/ozonetf/SanJuanEAC.update.3.17.04.ppt>).

5.0 Description of Mitigating Measures and Residual Impacts

Effects of the lease sale will be mitigated by attaching the Oil and Gas Leasing Stipulations to the lease parcels. The Albuquerque District Office's Surface Use and Occupancy Requirements, Conditions of Approval, and the Rio Puerco Field Office's Special Leasing Stipulations, which are in place at the New Mexico State Office, will provide adequate mitigation for all lease parcels.

Direct, indirect, cumulative and residual impacts of leasing and lease development are generally described in the approved Resource Management Plans and Record of Decisions. An environmental analysis will be prepared on a case-by-case basis upon receipt of future subsequent actions.

6.0 Consultation/Coordination

This section lists individual resource specialists located within the District as well as other individuals/agencies who were contacted during the development of this document.

6.1 Persons/Agencies Consulted

This section includes individuals or organizations that were contacted during the development of this document.

Table 6.1. Summary of Contacts Made During Preparation of Document and Interdisciplinary Team

Contact	Title	Organization
Mr. Tony H. Joe, Jr.	Navajo Culture Specialist	The Navajo Nation
Mr. Joe L. Cayaditto, Jr.	President	Torreon Navajo Chapter
Mr. Brian Gleadle	Chief, Northwest Area Operations	New Mexico Department of Game & Fish
Mr. Pat Mathis	Southwest Area Game Manager	New Mexico Department of Game & Fish

6.2 Authorities

Code of Federal Regulations (CFR)

40 CFR All Parts and Sections inclusive *Protection of Environment*, Revised as of July 1, 2001.
43 CFR, All Parts and Sections inclusive - *Public Lands: Interior*. Revised as of October 1, 2000.

Federal Cave Resources Protection Act of 1988 (102 Stat. 4546; 16 U.S.C. 4301)

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APPENDIX 1. RIO PUERCO FIELD OFFICE PARCELS, April 2010 Lease Sale

NM-201004-050 1252.680 Acres

T.0200N, R.0030W, NM PM, NM

Sec. 019 LOTS 1-4;

019 E2,E2W2;

030 LOTS 1-4;

030 E2,E2W2;

Sandoval County

Albuquerque FO

NMNM 99702, NMNM 99703

1ST REVIEW

Formerly Lease No. NMNM 46960, NMNM 98419, NMNM 99703, NMNM 35542,

NMNM 83489, NMNM 98420, NMNM 99702

Stipulations:

RP-TLS-2 Important Seasonal Wildlife Habitat

(Timing Limitation Stipulation - May 15 thru November 15)

RP-11-CSU Torrejon Fossil ACEC

NM-11-LN Special Cultural Resource

NM-201004-051 1280.000 Acres

T.0200N, R.0030W, NM PM, NM

Sec. 020 ALL;

029 ALL;

Sandoval County

Albuquerque FO

NMNM 99702, NMNM 100260

1ST REVIEW

Formerly Lease No. NMNM 35542, NMNM 83489, NMNM 98420, NMNM 99702,

NMNM 19151, NMNM 100260,

Stipulations:

RP-TLS-2 Important Seasonal Wildlife Habitat

(Timing Limitation Stipulation - May 15 thru November 15)

RP-11-CSU Torrejon Fossil ACEC

NM-11-LN Special Cultural Resource

