Environmental Assessment (EA)
For
Oil & Gas Competitive Leasing
Certain Parcels within the
Bakersfield Field Office
March 11, 2009
EA No. CA-160-09-001

U.S. Department of the Interior
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Dated:

Environmental Assessment (EA) for Leasing Certain Parcels within the Bakersfield Field Office for the

March 11, 2009 Oil and Gas Lease Sale

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I. PROPOSED ACTION PURPOSE AND NEED

A. Introduction and Background

The proposed action is to offer approximately 4,402.08acres of Federal mineral estate for competitive oil and gas leasing. This action is intended to meet Bureau of Land Management (BLM) responsibilities under the Mineral Leasing Act of 1920, as amended, Mining and Minerals Policy Act of 1980, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act), to conduct competitive oil and gas lease auctions within the state of California.

BLM has the responsibility to conduct quarterly competitive oil and gas lease auctions in accordance with Section 5102(2)(1)(A) of the Reform Act. The Reform Act directs the BLM to conduct quarterly oil and gas lease auction within each state whenever eligible lands are available for leasing. BLM policy is to offer, as expeditiously as possible, those lands available for oil and gas exploration and possible development, consistent with the Federal Land Policy and Management Act (FLPMA) of 1976, National Environmental Policy Act (NEPA) of 1969, and other applicable laws, regulations, and policies.

All of the lands were nominated by industry, and therefore represent areas of high interest (See Appendix A description of lands). The parcel descriptions in Appendix A are based on the Expressions of Interest filed by industry; however, the lands will be re-parcelized for the Lease Sale Notice, which will create additional parcels. Of the approximately 4,402.08acres of Federal mineral estate land that are considered for leasing, approximately 680.59acres are public surface with Federal mineral estate and approximately 3,721.49are split-estate (private surface with Federal subsurface minerals). All parcels would be subject to special leasing stipulations that would protect both endangered species and sensitive species and their habitat.

This Environmental Assessment (EA) is tiered to the Caliente Resource Management Plan/Environmental Impact Statement (RMP/EIS) dated May 5, 1997. The RMP/EIS is the most current land use plan located in the BLM Bakersfield Field Office. A more complete description of activities and impacts related to oil and gas leasing, development, production, etc. can be found in Chapter 5, page 33 of the RMP. Whether specifically mentioned or not, standard operating practices in the oilfield include measures to protect the environment and resources such as groundwater, air, wildlife, historical and prehistoric concerns, and others (Appendix C).

B. Purpose and Need for Action

This action is to conduct a competitive oil and gas lease auction. The BLM periodically conducts mineral estate lease auctions for lands that are managed by the federal government, whether managed by the Department of Interior (BLM, Bureau of Indian Affairs, Fish and Wildlife Service, Park Service), Department of Agriculture (Forest Service), or other Departments.

Federal Onshore Oil and Gas Leasing Reform Act of 1987 Sec. 5102(a)(b)(1)(A) (Reform Act) directs the BLM to conduct quarterly oil and gas lease auctions with each state whenever eligible lands are available for leasing. By conducting a lease auction of the Federal mineral estate, it provides for a potential increase of energy reserves for the U.S., it provides a steady source of significant income, and at the same time meets the requirements identified in the Energy Policy Act, Sec. 362(2), Federal Onshore Oil and Gas Leasing Reform Act of 1987, and The Mineral Leasing Act of 1920, Sec. 17.

C. BLM Oil & Gas Leasing and Lease Management

1. Federal Lands

BLM administers public land in accordance with the Federal Land Policy and Management Act (FLPMA) of 1976 and other laws. Sometimes public land includes the surface estate and the subsurface mineral estate, and sometimes it involves split estate where BLM controls either the surface or subsurface mineral estate but not both. BLM can lease public land including split estate lands where the surface estate is owned by another party. For parcels considered in this EA that are split estate, the lessee and/or operator would be responsible not only for adhering to BLM requirements, but also for reaching an agreement with the private surface landowner regarding access, surface disturbance and reclamation.

2. Review process

The phased approach for NEPA compliance has been determined by the Ninth Circuit Court of Appeals to be a valid method to comply with applicable laws and regulations (Ninth Circuit Court of Appeals, Northern Alaska Environmental Center et al *vs*. Kempthorne, 2006). In that decision, the Court said "Uncertainty is inherent in multi-staged projects and a phased analysis for both environmental and cultural (is appropriate)." At the leasing stage, a more generalized study is appropriate because it is not yet known which, if any, of the parcels will actually be developed, and the site specific analysis is more appropriately deferred to when development is proposed.

The Secretary of the Interior is responsible under the Mineral Leasing Act of 1920, as amended, for leasing and managing Federal oil and gas resources on public land. Acting for the Secretary, BLM has conducted ongoing oil and gas leasing activities for many years in the Bakersfield Field Office and throughout California.

The review process required before oil and gas drilling can occur is described in detail in Title 43 Code of Federal Regulations Part 3100 and BLM Manual 3100. In summary, BLM offers lands for oil and gas lease to the highest qualified bidder in a competitive auction. The lease term is 10 years, and for as long thereafter as oil and gas can be produced in paying quantities, and the maximum lease size offered by BLM is 2,560 acres, (see FOGRA of 1987 Sec. 5102(b)(1)(A)). BLM conducts and documents an environmental analysis at the lease issuance stage, unless an adequate analysis was included in an existing environmental document. Although most of the issues regarding oil and gas leasing on the lands covered by this document were addressed in previous documents, there are a few areas where either conditions have changed or else BLM policy has been modified, or both. Hence, this EA is tiered to the existing document previously discussed.

After obtaining a lease and prior to drilling any well, a lessee and/or operator submits an Application for Permit to Drill (APD), indicating the specific location of the drilling site. BLM conducts and documents additional environmental analysis at the APD stage. BLM may require reasonable mitigation measures in the APD, consistent with the lease terms and stipulations.

3. Directional drilling from adjacent land to a federal lease

BLM has the authority to regulate drilling from adjacent, non-Federal land if Federal minerals are involved by requiring a drilling application. Such directional drilling is subject to applicable environmental laws, including National Environmental Policy Act (NEPA) of 1969 and the Endangered Species Act (ESA) of 1973, as amended. BLM will process this type of application in the same manner as for an application on leased lands.

4. Lease terms and stipulations

A lease for oil and gas gives a lessee (holder of the lease) the right to drill and produce, subject to the lease terms, any special stipulations, other reasonable conditions, and approval of an Application for Permit to Drill (APD). The regulations at 43 CFR 3101.1-2 define the reasonable measures which BLM can require of a lessee. These include, but are not limited to, moving the proposed drilling site up to 200 meters, delaying surface disturbance or drilling up to 60 days, or requiring special reclamation measures. Generally, the BLM cannot deny a lessee the right to drill once a lease is issued unless the action is in direct conflict with another existing law. Stipulations such as the Limited Surface Use – Protected Species, Limited Surface Use – Sensitive Species and No Surface Use (Appendix B) are appropriate where sensitive and significant values exist which could be impacted by development of the oil and gas lease.

Any surface disturbing activity requires prior approval of the BLM. Such approval would include a site-specific evaluation and compliance with NEPA requirements. Routine activities including, but not limited to, cleaning out wells, well tests, monitoring activities, repairing and maintenance of equipment, and routine workovers do not require BLM approval, but would require adherence to all applicable laws and regulations.

For those parcels that are 'split-estate' (private surface overlying federal minerals), the BLM requires the lessee/operator to make a good faith effort to obtain an agreement with the private surface owner prior to access on the leased land issued through competitive bid.

Where the lessee/operator is unable to reach a surface use agreement with the private surface owner, the lessee/operator can file a surface owner protection bond. This bond should be in an amount sufficient to protect against damages to the surface as allowed in the statute that reserved the mineral rights to the Federal government. However, the minimum of the surface owner protection bond is $1,000.00.

Most new leases in California are never drilled, and only a very few result in producing wells. In fact, out of 447 parcels covering 372,600 acres leased in the past 10 years (since November 1, 1998), only 13 leases have had wells drilled on them. Of those, only two leases had more than two wells drilled on them. Only four leases have had any productive wells at all. The most wells drilled on any parcel was seventeen, on a 600+ acre lease just south of the South Belridge field in Kern County. Out of a total of 40 wells drilled, approximately 2/3 were productive.Land considered in this EA may have an overall higher potential for development, since some parcels are in or near existing developed fields with actively producing wells and all of them were specifically nominated for oil and gas leasing by the public. However, many of the lands that were leased in the past also met the same criteria, and they were never developed.

D. Conformance with the Existing Land Use Plans

The 1997 Caliente Resource Management Plan RMP identifies all of these lands as open to oil and gas leasing, subject to certain environment controls indicated in the plan, Ch. 5 page 34. Consequently, this action is in conformance with the Plan. Most importantly, because every parcel is within potential threatened and endangered species and sensitive species habitat, all parcels would contain both Limited Surface Use –Protected Species, and Limited Surface Use – Sensitive Species stipulations. These stipulations would ensure through a site specific biota survey and NEPA analysis that all protected or sensitive species issues were addressed prior to any surface disturbance. This would ensure protection of the resources and also provide notification to the lessee that further consultation and mitigation/compensation might be necessary prior to authorization of surface disturbance. Additionally, two parcels (20 and 21) would receive the No Surface Use Stipulation to comply with the Alkali Sinks Area of Critical Environmental Concern (ACEC) RMP decision. No new surface disturbance in those

areas is authorized in this proposed action – this EA is for competitive oil and gas auction only. Further analysis and approval would be required prior to actual surface disturbance.

E. Management Area General Objectives

The following objectives from the Caliente RMP will apply to all oil and gas related activities within the subject parcels:

• manage public lands to provide healthy, sustainable, biologically diverse ecosystems contributing goods, services and other social and cultural needs for local communities, the region and nation;

• manage public lands to meet the following minimum Standards of Ecosystem Health (See Chapter 6 Pg. 49 of the 1997 Caliente RMP for further explanation and indicators used to determine whether or not these standards are being met):

- Soils exhibit functional biological and physical characteristics that are appropriate to soil type, climate, and land form.
- Healthy, productive and diverse populations of native species, including special status species (Federal T&E, Federal proposed, BLM sensitive, or Calif. State T&E) are maintained or enhanced where appropriate.
- Riparian/wetland vegetation, structure and diversity and stream channels and floodplains are functioning properly and achieving advanced ecological status.
- Surface and groundwater quality complies with California or other appropriate water quality standards.

• provide a leadership role in developing and implementing regional conservation strategies,

• dedicate public lands to meet San Joaquin Valley conservation goals,

• integrate management objectives with and assist local county governments, private organizations, and state agencies in the development and implementation of local management plans (e.g. Habitat Conservation Plans, mitigation banks, county general plans, air and water quality plans), and

• collaborate with the oil and gas industry in meeting mutually beneficial management objectives.

F. Allocations

All lands evaluated for competitive oil and gas lease auction in this EA are already currently classified as available for leasing; therefore, no special allocations are proposed within this EA.

II. ALTERNATIVES

To facilitate discussion, each parcel of land is identified by a number beginning with Parcel number 1.

Map 1 in Appendix A shows the general location of each parcel and more details can be found on the website: http://www.blm.gov/ca/st/en/fo/bakersfield. For the actual competitive oil and gas lease auction, new parcel numbers will be generated that are different from the parcel number used in this EA. BLM will provide a crosswalk between the parcel numbers used in this EA and the parcel number actually used in the oil and gas lease auction.

A. Proposed Action

The proposed action is to offer 4,402.08acres of unleased federal minerals estate identified by the Parcel number referenced on Appendix A for oil and gas competitive auction to develop the federal mineral estate. Of the approximately 4,402.08acres of Federal mineral estate land that are considered for leasing, approximately 680.59acres are public surface with federal mineral estate and approximately 3,721.49acres are split-estate (private surface with Federal subsurface minerals). All parcels would be subject to special leasing stipulations that would protect both endangered species and sensitive species and their habitat. All of the federal interests (surface and minerals) are within the jurisdiction of the Bureau of Land Management, Bakersfield, California. All parcels are within Kern County. Approximately 700 acres in parcels 11, 12, 14, 15, and 20 are within the administrative boundary of existing oilfields. Of the 700 acres, a small amount of parcel 14, 2.5 acres, is within the productive zone of an oilfield. The remaining parcels are within 0.5-3 miles of the administrative boundaries of existing oilfields. With the exception of parcels 15 and 23, all of the parcels have been previously leased. All of the parcels would have the Limited Surface Use – Protected Species and Limited Surface Use – Sensitive Species stipulations attached to each lease form 3100-11 upon lease issuance. Parcel 23 is within the Alkali Sinks ACEC and would have the No Surface Use Stipulation. . See attached Appendix B for the text of this stipulation.

A number of parcels are private surface overlying federal minerals, known as "split-estate." The BLM has split estate guidance, (Washington Instruction Memorandum No. 2003-131) effective April 2003. The guidance addresses the purpose and the action that must be completed prior to any approval for new drilling. It also explains the rights, responsibilities, and opportunities of the BLM, lessee/operator, and the private surface owner. In addition, the recently revised Onshore Order No. 1 also contains details about permits issued on split estate lands.

B. No Action

Under the No Action alternative, the proposed parcels identified on Appendix A will not be offered for competitive oil and gas lease auction. In this option, BLM would not meet the requirement to offer lands available for oil and gas auction under the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act) and Energy Policy Act of August 5, 2005, Section 362(a)(1). In addition, the potential reserves that might be recovered would not be recovered if the lands were not leased.

C. Alternatives Considered but Not Further Analyzed - Exchange or Sale

In lieu of leasing, the surface and mineral estate (split estate lands) under BLM jurisdiction could be considered potentially suitable for disposal through exchange under Section 206 of FLPMA. The mineral estate could also be considered for sale under Section 209 of FLPMA. Either of these actions would privatize the mineral rights, as opposed to merely leasing them for a set period of time, as in the proposed action. Analyzing the potential sale or exchange of these nominated lands and the associated policy implications are beyond the scope of this document. Therefore, an exchange or sale alternative will not be further analyzed. This option will be more fully addressed in the new Caliente RMP, slated for completion in 2011.

D. Oil and Gas Leasing and Development

Oil and gas leasing and development have been previously addressed in more detail in the 1997 Caliente RMP/EIS beginning in Chapter 2, page 68. All future oil and gas related activities contemplated on lands offered in the proposed action are within the scope of those actions previously analyzed in the RMP EIS document, and no decisions made as a result of this EA will change or modify the decisions of the existing document.

Final Caliente RMP/EIS dated May 5, 1997

This action is also within the scope of the Caliente RMP Biological Opinion dated March 31, 1997 (101-97-F-64).

III. AFFECTED ENVIRONMENT

RESOURCE AREAS

A. Socio-Economic

The current Federal oil and gas leases in California produce approximately 16.9 million barrels of oil and 4.6 billion cubic feet of gas per year. Approximately 80-90% of this production comes from Kern County. The market value of these products from Kern County is over $1.5 billion per year, resulting in nearly $180 million dollars in royalties.

B. Visual Resource Management

All of the parcels are in Visual Resource Management Class IV areas. This classification means that the characteristic landscape has had major modifications and such modifications may continue. The level of change in the basic landscape elements due to management activities can be high. Such activities may dominate the landscape and be the major focus of viewer's attention.

C. Recreation

A significant portion of the acres proposed for lease4,402.08of the 3,721.49acres have a split estate surface ownership (private surface overlying federal minerals) and do not provide for public recreation opportunities. Parcels that have both federal surface and mineral estates (approximately 680.59 acres) are scattered and have limited public access. The lack of public access limits use of the parcels for recreation and other purposes to those individuals able to secure access across adjacent ownerships. The very limited public use on these lands includes hiking, hunting, and off highway vehicle use.

D. Air, Soil, and Water

1. Air Quality

The parcels proposed for lease are located in Kern County, which occurs in the San Joaquin Valley Air Basin. At the state level, regulatory duties lie with the California Air Resources Board (CARB) and at the federal level with the U.S. Environmental Protection Agency (EPA), Region IX. Oversight authority for air quality matters rest at the county level with the San Joaquin Valley Unified Air Pollution Control District (*SJVUAPCD*). The Bureau of Land Management has air program responsibilities and requirements to analyze all actions for conformity to air quality plans through its permitting programs and Clean Air Act as amended (42 USC 7401 et seq.).

The *SJVUAPCD* has prepared air quality plans for both PM10 and ozone for inclusion in the State Implementation Plan. The San Joaquin Valley has the following plans in place to address air quality: *Best Available Control Measures/Technology and Reasonable Available Control Measures/Technology Demonstration for Sources of PM10 and PM2.5 precursors in the San Joaquin Valley Air Basin*, *San Joaquin Valley 2007 8-hour Ozone Plan*, and *2008 PM2.5 Plan*. These plans include sections on emissions inventory and control strategies and include discussions on oil and gas development. Although the table below lists the state ambient air quality standard as nonattainment for PM10, the U.S. EPA issued a finding that the San Joaquin attains annual and 24-hour Federal PM10 standards. The attainment

status of the San Joaquin Valley Air Basin is shown in the table below, according to State Ambient Air Quality Standards and National Ambient Air Quality Standards (NAAQ's):

Table 1. Attainment status of the San Joaquin Valley Air Basin

Standard	State Ambient Air Quality Standard	National Ambient Air Quality Standard
PM10	Nonattainment	Attainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Ozone 8-hour	Nonattainment	Nonattainment

The attainment status reported for any given year is based on the previous three years of data. Nonattainment area designations were made for the new 8-hour ozone standard in April 2004 and the *San Joaquin Valley 2007 8-hour Ozone Plan* was approved by the CARB in June 2007. The EPA recently re-designated the San Joaquin Valley to attainment of the NAAQS for PM10 and approved the 2007 PM10 Maintenance Plan. In doing so, the EPA first approved the state's request to change the boundary of the SJV nonattainment area into two separate areas based on natural geographical and jurisdictional divisions: San Joaquin Valley air basin PM-10 area and East Kern PM10 area.

In 1997, the EPA set two PM2.5 standards, a 24-hour standard and an annual standard. Based on data from 2004 to 2006, the San Joaquin Valley complied with the 24-hour standard. In 2006, EPA revised the 24-hour standard to a lower level. Attainment plans for this new standard will be required; however, the 2008 PM2.5 Plan focuses on the strategy to attain the 1997 annual standard. The *2008 PM2.5 Plan* builds upon the strategy adopted in the *2007 Ozone Plan* to bring the Valley into attainment of the 1997 NAAQS.

The Oil and Gas industry is highly regulated by the Districts. The air plans are implemented through rule making which include a number of categories including permitting, equipment requirements and performance standards, dust and precursor emissions (NOx and SO_2) and others. Any oil and gas and lands activities authorized by BLM, including oil and gas leasing and rights-of-way, would also have to comply with all of the applicable rules and permitting requirements.

Currently there are a number of emission sources in the air basin which affect pollution levels. The Districts have documented these in their air plan inventories. The *SJVUAPCD* shows the baseline (1990) emissions for NOx at 787 tons per day in the summer time. Of that total, 165.1 tons (21%) were from oil and gas production. Kern County oil and gas activities accounted for approximately 15% of the NOx emissions (117.3 tons per day). Kern County has 1,500-2,600 new oil and gas wells drilled every year. In addition, emissions from hundreds of thousands of automobiles and trucks and significant other industrial and agricultural sources accounted for another 147 tons of NOx per day in Kern County in 1990.

References

http://www.epa.gov/region09/air/sips/index.html (accessed 11/4/08)

http://www.arb.ca.gov/desig/desig.htm (accessed 11/4/08)

http://www.valleyair.org/ (accessed 11/4/08)

2. Soil Quality

Soils on these properties are typical of those developed from relatively fine-grained residual or alluvial materials under semi-arid to arid conditions. A characteristic soil tends to be very deep, well-drained,

light colored, and loamy in texture with some rock fragments. Some parcels may contain soils with an abundance of alkaline salts and carbonates. These soils are also characterized by moderately slow permeability, slow surface runoff and slight erosion hazards on slopes. In areas of slightly greater slope (9-15%), runoff and erosion are moderate. Where slopes are greater than 30%, surface runoff is rapid and erosion hazard is moderate to severe. **Lost Hills Unit** (Parcels 1-14)

The Lost Hills Unit (Parcels 1-14) is comprised of 14 soil map units. These include Kimberlina fine sandy loam (0 to 2 percent slopes), Kimberlina sandy loam, (2 to 5%), Panoche clay loam (0-2%), Panoche clay loam (2-5%), Twisselman sandy loam, saline-alkali, (0-2%), Twisselman clay (0-2%), Twisselman clay, saline-alkali, moderately wet (0-2%), Twisselman clay (2-5%), Yribarren clay loam (2-5%), Milham sandy loam (0-2%), Carollo-Twisselman saline alkali association (2-15%), Kecksroad silty clay loam (5-15%), Bitterwater sandy loam (9-15%), and Delgado sandy loam (5-30%). Panoche clay loam and Kimberlina fine sandy loam, (0-2%) are the dominant soil types within the Lost Hills Unit, occurring on half of the 14 parcels. In uncultivated areas, these soils typically support annual grasses, forbs, and shrubs including salt tolerant shrub species.

The Carollo-Twisselman saline alkali association, 2 to 15 percent slopes, occurs on Parcel 2 and Delgado sandy loam soils, 5 to 30 percent slopes, occur on Parcels 2 and3.

Twisselman clay, saline-alkali, moderately wet (0 to 2 percent slopes) occurs on Parcel 9. This soil occurs on basins and on the rims on basin floors.

Soil drainage classes in these parcels range from well drained to somewhat excessively drained. These soils do not meet hydric criteria, meaning they do not qualify as wetlands. Potential for erosion hazard ranges from slight to moderate, and increases with slope.

Mt. Poso Unit (Parcel 15)

Two soil map units occur on Parcel 15: the Chanac-Pleito-Premier association and the Chanac-Pleito complex. The Chanac-Pleito-Premier soil components occur on fan remnants and valleys, on 20 to 60 percent slopes. The Chanac-Pleito complex occurs on 5 to 30 percent slopes. The natural drainage class of these units is well drained and these soils do not meet the hydric criteria to qualify as wetlands.

Chico Martinez Unit (Parcel 16)

Soils within Parcel 16 are predominately Bitterwater gravelly sandy loam. The Bitterwater soils are deep and well drained, and occur on 15 to 50 percent slopes. Weathered sandstone lies below the sandy loam surface layer of the Bitterwater map unit. The Kilmer-Hillbrick complex is also present on the parcel, which is characterized as deep, well drained soil with high runoff and high erosion hazard.

Derby Acres Unit (Parcels 17-22)

These parcels contain four soil map units: Elkhills-Pyxo association, Sodic Haplocambids, coarse-loamy, thick-Elkhills complex, Guijarral complex, and Kimberlina fine sandy loam. The Elkhills-Pyxo association occurs on hillslopes and hills, on slopes ranging from 15 to 50 percent. The Elkhills component consists of alluvium derived from sedimentary rock and/or granitoid rock while the Pyxo component weathered from soft calcareous sandstone or shale. The Sodic-Haplocambid-Elkhills complex is approximately 60 percent Sodic Haplocambids, thick, coarse-loam. This unit also occurs on hillslopes and hills, on 9 to 30 percent slopes. The natural drainage class of these components is well drained.

The Guijarral complex occurs on slopes ranging from 2 to 9 percent. The soil complex is comprised of 60 percent Guijarral, extremely gravelly substratum and 30 percent Guijarral. This unit is developed from calcareous sedimentary rock occurring on valleys and fan remnants.

Kimberlina fine sandy loam occurs on 2 to 5 percent slopes. This map unit consists of alluvium derived from sandstone and shale and occurs on valleys and alluvial fans.

Alkali Sink Unit (Parcel 23)

Three soil map units occur on Parcel 23: Calflax loam, Fages clay, and Posochanet silty clay loam, saline-sodic. This parcel is primarily comprised of Calflax loam, on 0 to 1 percent slopes. Calflax loam developed from alluvium derived from mixed mineralogy rock, occurring on fan skirts and valleys. The Posochanet unit also occurs on valleys and fan skirts, at 0 to 1 percent slopes. Fages clay occurs on valleys and basin floors, on 0 to 1 percent slopes. The natural drainage classes of soils within this parcel are moderately well drained to well drained.

3. Water Quality

The parcels are in areas where there are or may be fresh water aquifers. Based on the United States Geological Survey (USGS) 7.5 minute quadrangle maps, the following parcels contain unnamed, intermittent, or ephemeral streams or drainages: Parcels 17, 19,20, and 22. In addition, irrigation ponds occur on parcels 3, 7, and 13, while canals cross parcels 1 and 13.

The California Aqueduct and a canal bisect Parcel 8 and the northern portion of Parcel 11.

An unnamed perennial stream occurs in the northern portion of Parcel 15.

The Chico Martinez Unit (Parcel 16) includes approximately 1.5 miles of Chico Martinez Creek, an ephemeral stream, and 0.75 miles of an unnamed tributary to Chico Martinez Creek. All parcels are within watersheds governed by basin plans subject to federal and state Clean Water Acts. BLM will require full compliance with all applicable federal, State, and local laws, regulations, and policies to protect both surface and groundwater.

4. Climate Change

Recent analysis of global climate model predictions predicts that southern California will become hotter and drier (Christensen *et al*. 2007). Annual precipitation will decrease and most areas will have fewer heavy precipitation events. Overall, snow depth will decrease as a result of delayed autumn snowfall and earlier spring snowmelt. There will be increases in extreme hot temperature events, more prolonged hot spells, an increased diurnal temperature range, and a concurrent decrease in extreme cold events.

With enactment of the California Global Warming Solutions Act of 2006 (AB 32; Stats. 2006, chapter 488), the California Air Resources Board (ARB) was tasked with several new responsibilities to help address the threat of global warming. Two of these new responsibilities, greenhouse gas emissions inventory and mandatory reporting, are complementary efforts to assess and monitor California's progress toward greenhouse gas (GHG) emissions quantification and mitigation. The first effort established the California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit. The second effort led to the adoption by the ARB of a regulation to require the mandatory reporting and verification of greenhouse gas.

http://www.arb.ca.gov/desig/desig.htm (accessed 11/6/08)

E. BIOLOGICAL RESOURCES INCLUDING RIPARIAN AND WETLANDS

To facilitate discussion, the properties included in this action have been divided into nine Biological Units, i.e., groupings of adjacent parcels with similar ecological values. Unit names reflect some aspect

of local geography. Information presented for each Biological Unit includes general topography, notable disturbance, vegetation, common animals, and potential sensitive species. For some units, particular characteristics of individual parcels are also noted.

Special Status Species. Special Status Species includes federally listed, state listed and BLM California sensitive species. Each unit discussion includes a discussion of Special Status Species.

Lost Hills Unit (Parcels 1-14).

The Lost Hills Unit consists of 3,242 acres located on the west side of the San Joaquin Valley, north and west of the town of Lost Hills. Elevation ranges from 250 to 513 feet. The area's topography consists of a flat, gentle alluvial fan draining to the northeast. Two parcels (2 and 3) are located on the elevated ridges associated with the eastern slopes of the Coast Range. The California Aqueduct crosses parcels 8 and 11.

Parcels 1 and 4-14 are currently or previously in cultivation. The California Aqueduct bisects parcels 8 and 11. Two small strips (approximately 40 acres) of native vegetation border the aqueduct in parcels 8 and 11. In the strips, native vegetation appears to be a mosaic of saltbush scrub and valley grassland. Shrubs likely to be present include common saltbush (*Atriplex polycarpa*), pale-leaf goldenbush (*Isocoma acradenia* var. *bracteosa*), and snakeweed (*Gutierrezia californica*). Grassland species include the introduced bromes and Mediterranean grass (*Bromus* and *Schismus* spp.), as well as the typical grassland wildflower species such as gold fields (*Lasthenia* sp.).

Parcels 2 and 3 are located on the western ridges of South Dome, a geologic feature straddling the border of Kings and Kern counties. Vegetation appears to be sparse on the shale ridges and is most likely a combination of introduced grasses and various native forbs adapted to the xeric conditions of the site. Likely to be encountered are species such as bromes (*Bromus* spp.), buckwheats (*Eriogonum* spp.), and peppergrass (native *Lepidium* spp.), as well as occasional shrubs including common saltbush (*Atriplex polycarpa*), bladderpod (*Isomeris arborea*), and snakeweed (*Gutierrezia californica*).

Wildlife on the cultivated parcels would be limited to mobile species that wander onto the edges of the cultivated fields. Common animals expected to be found in the native vegetation include species such as Heerman's kangaroo rat, grasshopper mouse, California pocket-mouse, California ground squirrel, desert cottontail, black-tailed jackrabbit, short-eared owl, horned lark, meadowlark, loggerhead shrike, and side-blotched lizard.

Special status animal species with the potential to occur in the general area include blunt-nosed leopard lizard, Tipton kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, mountain plover, burrowing owl, LeConte's thrasher, San Joaquin pocket mouse and Tulare grasshopper mouse. Parcels under active cultivation may only provide potential habitat for San Joaquin kit fox, burrowing owl and mountain plover.

Special status plant species which may be present include San Joaquin woolythreads, Munz's layia, recurved larkspur, California jewelflower, Hoover's woollystar, Horn's milk vetch, Lost Hills crownscale, and Temblor buckwheat.

Mt. Poso Unit (Parcel 15)

The Mt. Poso Unit consists of 320 acres located in the low hills to the west of the Sierra Nevada's, north of Poso Creek. Elevation ranges from 800 to 1,122 feet. Topography ranges from gentle to moderately sloped hills. Current use appears to be as grazing lands. Development visible from aerial photos includes a paved road.

Vegetation likely consists primarily of non-native annual grassland, dominated by introduced species such as red brome (*Bromus madritensis* ssp. *rubens*), red-stemmed filaree (*Erodium cicutarium*), and foxtail fescue (*Vulpia myuros*). Native wildflowers include species such as fiddleneck (*Amsinckia* sp.), lupine (*Lupinus* sp.), pepper grass (*Lepidium* sp.), popcorn flower (*Crypthantha* sp.), milkweed (*Apocynum* sp.), locoweed (*Astragalus* sp.), and lotus (*Lotus* sp.). Goldenbush (*Isocoma acradenia* var. *bracteosa*) and snakeweed (*Gutierrezia californica*) would be encountered as a minor component of the vegetation. Other shrubs that may be present in small amounts include common saltbush (*Atriplex polycarpa*), interior goldenbush (*Ericameria linearifolia*), and bladderpod (*Isomeris aborea*). Weedy species in the area include horehound (*Marrubium vulgare*), Russian thistle (*Salsola tragus*), tree tobacco (*Nicotiana glauca*), white horse-nettle (*Solanum elaegnifolium*).

Wildlife typical of the area includes species such as black-tailed hare, desert cottontail, California ground squirrel, Botta's pocket gopher, coyote, kit fox, American badger, red-tailed hawk, mourning dove, western kingbird, common raven, white-crowned sparrow, western meadow lark, side-blotched lizard, and western rattlesnake. Heerman's kangaroo rat and western whiptail may also be present.

Special status animal species with the potential to occur on the parcel includes San Joaquin kit fox, burrowing owl, San Joaquin pocket mouse and Tulare grasshopper mouse.

Potential listed plants for this parcel include the federally endangered Bakersfield cactus (Opuntia basilaris var. treleasei) and the federally threatened San Joaquin adobe sunburst (Pseudobahia peirsonii). BLM sensitive species that may have potential of being in this area include oil neststraw (Stylocline citroleum), striped adobe lily (Fritillaria striata), and recurved larkspur (Delphinium recurvatum).

Chico Martinez Unit (Parcel 16)

The Chico Martinez Unit consists of 520 acres located on the west side of the San Joaquin Valley, on the eastern side of the Temblor range, north of Hwy 58. The parcel is within the Chico Martinez ACEC. Elevation ranges from 1,320 to 1,888 feet. Topography ranges from moderate to steep. Currently the lands is used is for grazing livestock and there are dirt roads on the parcel.

Vegetation in the Chico Martinez Unit includes non-native grassland, prominent bare shale expanses and saltbush scrub. The grassland is dominated by introduced species like red brome (*Bromus madritensis* ssp. *rubens*), Arabian grass (*Schimus* spp.), red-stemmed filaree (*Erodium cicutarium*), and, in the higher elevations, wild oats (*Avena barbata*). Native species include

various buckwheats (*Eriogonum*), fiddleneck (*Amsinckia* sp.), lupine (*Lupinus* spp.), popcorn flower (*Crypthantha* spp.), peppergrass (*Lepidium* spp.), goldfields, (*Lasthenia* spp.), layia (*Layia* spp.), hillside daisy (*Monolopia lanceolata*), California poppy (*Eschscholtzia californica*), and red maids (*Calandrinia ciliata*). Grassland vegetation forms the understory of the shrub communities and as the main vegetation in the drier areas. The saltbush scrub, dominated by common saltbush (*Atriplex polycarpa*), can include shubs such as alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), bladderpod (*Isomeris arborea*), goldenbush (*Ericameria linearifolia*), and snakeweed (*Gutierrezia californica*). Weeds to be expected include horehound (*Marrubium vulgare*), Russian thistle (*Salsola tragus*), tocalote (*Centaurea melitensis*), and tree tobacco (*Nicotiana glauca*).

Wildlife typical of the saltbush scrub and non-native grasslands within the Chico Martinez Unit include side-blotched lizard, western whiptail, blunt-nosed leopard lizard, coachwhip, gopher snake, common kingsnake, western diamondback rattlesnake, turkey vulture, northern harrier, red-tailed hawk, American kestrel, mountain plover, long-billed curlew, mourning dove, greater roadrunner, barn owl, burrowing owl, horned lark, common raven, northern mockingbird, LeConte's thrasher, water pipit, loggerhead shrike, lark sparrow, sage sparrow, white-crowned sparrow, western meadowlark, desert cottontail, black-tailed hare, San Joaquin antelope squirrel, California ground squirrel, San Joaquin pocket mouse, Heerman's kangaroo rat, giant kangaroo rat, short-nosed kangaroo rat, deer mouse, southern grasshopper mouse, coyote, San Joaquin kit fox, badger, and bobcat.

Special status animal species with the potential to occur on the Chico Martinez Unit includes blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, burrowing owl, LeConte's thrasher, short-nosed kangaroo rat, San Joaquin pocket mouse, Tulare grasshopper mouse and pallid bat. Recent biological surveys conducted during geophysical projects in the Chico Martinez area have not identified widespread small mammal burrowing, possibly a consequence of the shale soil, which is a poor substrate for burrowing activity.

Rare plants in the area include the federally endangered San Joaquin woolythreads (Monolopia congdonii), the recently delisted Hoover's woollystar (Eriastrum hooveri). BLM sensitive species which may be present include Temblor buckwheat (Eriogonum temblorense), recurved larkspur (Delphinium recurvatum), diamond-petaled California poppy (Eschscholtzia rhombifolia), and pale yellow layia (Layia heterotricha).

<u>Derby Acres Unit</u> (17-22)

The Derby Acres Unit consists of 278 acres located on the west side of the San Joaquin Valley, east of the town of Derby Acres. Elevation ranges from 1,000 to 1,150 feet. Topography ranges from gentle to moderately sloped hills.

Vegetation within the Derby Acres Unit is a mosaic of non-native grassland and valley saltbush scrub. The grassland is dominated by red brome (*Bromus madritensis* ssp. *rubens*) and red-stemmed filaree (*Erodium cicutarium*), and supports other introduced weedy species such as

zorro fescue (*Festuca megalura*), foxtail (*Hordeum glaucum*), Mediterranean grass (*Schismus barbatus*), Russian thistle (*tragus*), horehound (*Marrubium vulgare*), and various mustards. Native forbs include fiddleneck (*Amsinkia intermedia*), pepperweed (*Lepidium dictyotum*), crassula (*Crassula erecta*), tansy phacelia (*Phacelia tanacetifolia*), locoweed, (*Astragalus* sp.), Jimson weed (*Datura wrightii*), turkey mullein (*Eremocarpus setigerus*), and wild buckwheat (*Eriogonum ordii*). The valley saltbush scrub is dominated by common saltbush (*Atriplex polycarpa*) and possibly spiney saltbush (*A. spinifera*). Cheeseweed (*Hymenoclea salsola*) is also relatively common, while other shrubs encountered include bladderpod (*Isomeris arborea*), matchweed (*Guiterrezia californica*), and alkali goldenbush (*Isocoma acradenia* var. *bracteosa*). Potential weeds on these parcels include tamarisk, horehound, and Russian thistle.

Wildlife typical of the saltbush scrub and nonnative grasslands within the Derby Acres Unit includes side-blotched lizards, western whiptail, blunt-nosed leopard lizard, coachwhip, gopher snake, common kingsnake, western diamondback rattlesnake, turkey vulture, northern harrier, red-tailed hawk, American kestrel, long-billed curlew, mourning dove, greater roadrunner, barn owl, burrowing owl, horned lark, common raven, northern mockingbird, LeConte's thrasher, water pipit, loggerhead shrike, lark sparrow, sage sparrow, white-crowned sparrow, western meadowlark, desert cottontail, black-tailed hare, San Joaquin antelope squirrel, California ground squirrel, San Joaquin pocket mouse, Heermann's kangaroo rat, giant kangaroo rat, short-nosed kangaroo rat, deer mouse, Tulare grasshopper mouse, coyote, San Joaquin kit fox, badger, and bobcat. The occurrence of mature saltbush plants greatly influences the presence of many of the bird species and a few mammals (e.g. mockingbird, loggerhead shrike, LeConte's thrasher, lark sparrow, sage sparrow, white-crowned sparrow, desert cottontail, black-tailed hare). However, most of these wildlife species are commonly found in both the saltbush scrub and nonnative grassland habitats.

Special status animal species with the potential to occur on the Derby Acres Unit includes blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, burrowing owl, LeConte's thrasher, short-nosed kangaroo rat and Tulare grasshopper mouse.

The Derby Acres Unit is within the historical range of the federally endangered Kern mallow (Eremalche parryi ssp. kernensis), California jewelflower (Caulanthus californicus), and San Joaquin woolythreads (Monolopia congdonii), and the recently delisted Hoover's woollystar (Eriastrum hooveri). Special status plant species known from the nearby area include Tejon poppy (Eschscholtzia lemonii spp. kernensis), oil neststraw (Stylocline citroleum), Lost Hills crownscale (Atriplex vallicola), and heartscale (Atriplex cordulata).

<u>Alkali Sink Unit</u> (23)

The Alkali Sink Unit consists of 42 acres located on the floor of the Central Valley, south of the Buena Vista Lakebed and north of Copus Road. Topography is flat and the elevation is 300 feet. The parcel is part of the Alkali Sink Area of Critical Environmental Concern (ACEC). The ACEC was established to protect rare valley sink scrub community and associated wildlife. Oil and gas leasing within the ACEC would be subject to the No Surface Use (NSU) stipulation. Characteristic plant species of valley sink scrub include iodine bush (*Allenrolfea occidentalis*), saltgrass (*Distichlis spicata*), kochia (*Kochia californica),* goldfields (*Lasthenia* spp.),

pickleweed (*Salicornia subterminalis*) and seepweed (*Suaeda* sp.). Potential weeds include saltcedar (*Tamarix* sp.), horehound (*Marrubium vulgare*), Russian thistle (*Salsola tragus*) and perennial pepperweed (*Lepdium latifolium*).

Animals that may be present include cottontail, black-tailed jackrabbit, California ground squirrel, coyote, white-shouldered kite, red-tailed hawk, common raven, horned lark, side-blotched lizard and western rattlesnake.

Special status animal species which may be present include San Joaquin kit fox, Tipton kangaroo rat, burrowing owl, San Joaquin pocket mouse and Tulare grasshopper mouse. Blunt-nosed leopard lizard and Buena Vista Lake shrew are not expected to occur on the parcels. Tipton kangaroo rats were reported from the site in 1985 by Dan Williams. During a recent field visit, activity resembling Tipton kangaroo rats, was observed on the parcel.

Special status plant species potentially present on this parcel include Coulter's goldfields, recurved larkspur, Lost Hills crownscale, Hoover's woolystar, heartscale, and Horn's milk vetch.

RIPARIAN AND WETLAND HABITAT

The Lost Hills Unit includes wetland habitat associated with agriculture. Irrigation ponds (parcels 3, 7, 13), canals (parcels 1, 13) and the California Aqueduct (parcels 8, 11) occur within this unit. These wetland areas do not support riparian vegetation, but may provide habitat for wetland species such as waterfowl and certain fish species.

The Chico Martinez Unit includes 1.5 miles of Chico Martinez Creek and 0.75 miles of an unnamed tributary to Chico Martinez Creek. Based on aerial photography (2000, 2003 and 2006) and field visits to the general area by BLM staff, neither of the drainages appears to support riparian vegetation.

The Derby Acres Unit supports only dry washes. There are no drainages on the Alkali Sink Unit.

F. CULTURAL RESOURCES

The lease parcels identified in this document fall within the prehistoric territories of the Salinan and Yokut Indians. Specifically, the Lost Hills unit (Parcels 1-14) included lands which may have been frequented by both the Salinan and Tuhoumne Yokuts (Latta 1977: 205). The Mt. Poso unit (Parcel 15) is attributed to the Paleumne Yokuts (Latta 1977:201). Also, the Chico Martinez, Derby Acres, and Alkali Sink units (Parcels 16-23) all exist within the areas utilized by the Tulumne Yokuts; according to ethnographic sources (Latta 1977: 228).

Each of the Yokut tribelets listed above shared a similar language and lifeway, which exploited the resources found within the Central San Joaquin Valley. Subsistence practices consisted primarily of hunting, gathering, and some fishing. The bulk of the plant foods in the Yokut diet were acorns, manzanita berries, wild oats, and pine nuts, while hunted animals consisted of deer, quail, rabbits, squirrels, and fish such as salmon. Those Yokut groups near rivers and large bodies of water such as Tulare and Buena Vista Lakes made use of the varied food sources along these waterways such as waterfowl, fish and shellfish. The Yokuts also utilized tule which grew in abundance at river and lake edges, as a building material for structures and canoes, and as clothing. Goods manufactured and utilized

among the Yokuts included flaked stone tools, intricate basketry, tanned animal hides, and bow and arrow hunting technology (Wallace 1978: 451-453).

The Salinan Indians spoke a Hokuan language, which was different from that of the Yokuts; however, both groups lived in a similar manner. The location of few Salinan village sites are known today, but it is recognized that their territory stretched from the California Coast to the edge of the Coast Ranges and Central Valley.

Prehistoric sites common to this region include pictograph rock art, bedrock mortar and millingstone food processing stations, lithic scatters, and village or hamlet sites. A record search aimed at identifying all known sites and previous archaeological surveys of the 23 parcels in this document showed that very little research has been completed in the past. In fact, only one parcel (parcel 16) had a recorded archaeological site. In order to insure that the site on parcel 16 is not impacted there will be no surface occupancy within a reasonable vicinity of the site; which is in compliance with Section 106 of the National Historic Preservation Act.

G. Livestock Grazing

The public lands in Parcels 16 through 22, proposed for oil and gas leasing for which BLM owns the surface estate, are also leased by the BLM for livestock grazing. The federal surface lands in these parcels make up a portion of grazing allotment #00063 (Chico Martinez), #00003 (Naval Petroleum Reserve I) and #00019 (Buena Vista Creek). The lands in these allotments are authorized for grazing of cattle or sheep annually during various seasons of use.

H. Lands

The lands proposed for competitive leasing of the federal mineral estate are mainly scattered split estate mineral parcels (private surface overlying federal minerals) under the jurisdiction of BLM. There are seven parcels with full fee estate (surface + mineral estate) under the jurisdiction of BLM. For the split estate parcels, the United States not only owns any minerals in the land, but also surface entry rights that 'float' over the entire parcel.

Parcel 1 is a split estate parcel located in northwest Lost Hills and adjacent to the California Aqueduct. The parcel is surrounded by private lands. The U.S. Government has no legal access; however, there appears to be a road that goes through the parcel

Parcel 2 is a split estate parcel located northwest of Lost Hills. The parcel is surrounded by private lands. Some access is present to the parcel; however, the U.S. Government has no legal access.

Parcel 3 is a split estate parcel located northwest of Lost Hills. The land is located in an area where the main land usage is for livestock grazing. The parcel is surrounded by private lands. The U.S. Government has no legal access.

Parcels 6 and 7 are split estate parcels located northwest of Lost Hills surrounded by private lands. The U.S. Government has no legal access.

Parcel 8 is a split estate parcel located northwest of Lost Hills. The surrounding lands are private. The U.S. Government has no legal access. The CA Aqueduct goes through this parcel.

Parcel 9 is a split estate parcel surrounded by private lands located northwest of Lost Hills. The U.S. Government has no legal access.

Parcel 10 is a split estate parcel surrounded by private lands located northwest of Lost Hills. The U.S. Government has no legal access.

Parcel 11 is a split estate parcel surrounded by private lands located northwest of Lost Hills. This parcel is within the FPC O 9/23/1965 Wdl Pwr. Proj. 2426.

Although the U.S. Government has no legal access, there appears to be some access through the private lands. The CA Aqueduct crosses the NE/4 of the parcel.

Parcel 12 is a split estate parcel surrounded by private lands located northwest of Lost Hills. The U.S. Government has no legal access.

Parcel 13 is a split estate parcel surrounded by private lands located northwest of Lost Hills. There appears to be a dirt road on the parcel. The U.S. Government has no legal access.

Parcel 14 is a split estate parcel. The CA Aqueduct crosses the parcel. Roads are present on the adjacent private land. The U.S Government has no legal access.

Parcel 15 is a split estate parcel surrounded by private land located near Mt. Poso. There appear to be some dirt roads. The U.S. Government has no legal access.

Parcel 16 is a federal surface and mineral estate managed by the BLM located in Chico Martinez on the west side of the San Joaquin Valley. Most of this parcel is surrounded by federal surface. There appear to be dirt roads present near this parcel.

Parcel 17 is both federal surface and split estate parcel located between Derby Acres and Buena Vista on the west side of the San Joaquin Valley. The parcel is surrounded by both private and federal property. There appear to be some dirt roads present.

Parcel 18 is a federal surface and mineral estate managed by the BLM located between Derby Acres and Buena Vista on the west side of the San Joaquin Valley. The parcel is surrounded by both private and federal property.

Parcel 19 is a split estate parcel located between Derby Acres and Buena Vista on the west side of the San Joaquin Valley. Access to this parcel is private. The U.S. Government has no legal access.

Parcel 20 is a federal surface and mineral estate managed by the BLM located between Derby Acres and Buena Vista on the west side of the San Joaquin Valley. The parcel is surrounded by private lands and also federal land.

Parcel 21 is a federal surface and mineral estate managed by BLM located between Derby Acres and Buena Vista on the west side of the San Joaquin Valley. The parcel is surrounded by private land and federal land. There is a 5-foot underground pipeline right-of-way (CAS 020925) located on this parcel.

Parcel 22 is both a federal surface and split estate parcel located between Derby Acres and Buena Vista on the west side of the San Joaquin Valley. The parcel is surrounded by private lands. There are dirt roads through the private lands. The U.S. Government has no legal access.

Parcel 23 is a federal surface and mineral estate managed by BLM located north of Copus Rd. The parcel is surrounded by private lands. There are no roads present to this parcel.

I. Farmland

There are nine parcels (Parcels 1, 3, 4, 5, 6, 9, 10, 11, and 14) identified for leasing the federal mineral estate that are located on acreage designated as farmland, or are currently under production as farmland. These parcels are on split estate lands that appear to be identified as agriculture land.

J. Oil and Gas Resources

All parcels are in Kern County and are classified as having high potential for occurrence of hydrocarbons, with all of them being nominated for leasing by members of the oil and gas industry. This is one of the oldest oil districts in the United States, and has been extensively developed in the anticlinal trends along the east and west sides of the Valley since the 1870's.

Most reservoirs in the area are sandstones which have adequate porosity and permeability for the migration of oil and gas. Some reservoirs in the area are fractured siliceous organic shales of the Monterey formation. The Monterey formation is both source and reservoir rock. Compression and diagenesis severely degrade reservoir quality at depths exceeding 12,000 feet to the extent that only dry gas is produced from greater depths.

The following statistics are from the California Division of Oil, Gas, and Geothermal Resources (CDOGGR) website shown below. There are over 75 oil and gas fields in the Valley, including several giant fields (more than 100 million barrels of oil each). As of 2006, cumulative production in the area was about 12 billion barrels of oil equivalent. In recent years, the Valley has accounted for about 85-90% of California's development completions. Over 90% of the wells are on private leases. Between 2003 and 2007, there were a total of 11,071 wells drilled in DOGGR District 4, which is mainly Kern County. In the same 5 years, there were a total of 807 permits issued to drill wells on federal lands throughout California. Approximately 90% of those wells were in Kern County (720+ wells). The ratio of 720 federal vs. 10,873 total (6.6% federal) has remained relatively constant throughout time, although the exact numbers are not readily available.

The San Joaquin Valley is expected to continue as the primary source of oil in California's oil and gas development. Additional information such as the number of existing wells and expected drilling, completion and abandonment rates is in the section on Environmental Consequences.

Sources: ftp://ftp.consrv.ca.gov/pub/oil/annual_reports/2007/PR06_Annual_2007.pdf for 2007

Similar for other years 2003 - 2006.

IV. ENVIRONMENTAL IMPACTS

Proposed Action Alternative – Direct and Indirect Impacts

Analysis Assumptions – Reasonable Foreseeable Oil and Gas Development (RFD) Scenario

General Discussion

Exploration activities within the area will generally focus on oil and not natural gas. The mid to southern San Joaquin Basin is primarily an oil province with small amounts of natural gas as an associated product. Less commonly, non-associated gas is also found. Exploration will use such tools as geophysical surveys (usually this means running seismic lines), and drilling exploration wells. A brief summary of these activities follows. In all cases, a site specific EA would be prepared prior to approval of any application to conduct surface disturbing activities (see previous discussion under *IV. Conformance with Existing Land Use Plans)*. Detailed descriptions of typical oil and gas activities may be found in the Caliente Resource Management Plan, December 1996, Ch. 5 page 45.

Exploration Activities

After seismic and/or detailed stratigraphic basin studies are made, an APD may be submitted. Because of the location of nearly all of the lands within this EA, many of the APDs would be for exploration drilling,

which includes drilling to discover entirely new fields, or discovery of previously untapped reservoirs within existing fields. Drilling to discover new fields is of greatest concern in this EA because in most cases it would involve disturbances of previously undisturbed lands. Historically in the San Joaquin Valley, only about 10-15% of wildcat wells have been successfully completed as producers. In fact, between 1990 and 2007, 64 exploratory wells were drilled (source: personal email from Mark Gamache, CDOGGR, to Jeff Prude, BLM, dated 3-27-07), and only one relatively small field (Rose field, discovered July 2000) was discovered. The remaining 85-90% of the wells are non-producers which are immediately plugged and abandoned (P&A'd), so any disturbance associated with the drilling of these P&A'd wells would be temporary. It should be noted that all seventeen wells drilled as wildcats (not within the administrative boundaries of an oilfield) on federal leases issued since November 1, 1998, were successful, but they were all on the same lease. That lease, south of and adjacent to the South Belridge Field, is currently being considered for reclassification as an extension of the existing field. If it is reclassified, that would mean that no wildcats have been drilled on federal leases issued in the last ten years.

Development Drilling

Development wells include step-out or field extension wells, enhanced oil recovery wells, or other infield wells. Even though the drilling of development wells will be adjacent to or actually within areas of current production, it still may require some disturbance on previously undisturbed lands.

Based on the data for the past 10 years, up to 26,000 wells are projected to be drilled on Federal, state and private lands in the San Joaquin Valley in the next 10 years. If historical trends continue, (and there is no data to suggest otherwise), about 1,500-2,800 of those will be on federal mineral estate. Nearly all of these will be within the same general area of the state as lands covered by this EA. The vast majority (up to 90% or more) of these wells will be on private mineral estate.

Approximately 95-97% of the wells projected to be drilled during the next ten years will be development wells (as opposed to exploratory wells). An estimated 95+% of the development wells will be successful, while the remainder will be unsuccessful and will be plugged and abandoned upon completion of drilling.

The total number of acres of Federal mineral estate in the San Joaquin Valley is about 440,000 acres. The total number of acres in the parcels to be offered in this lease auction is about 4,402 acres, or 1% of the total. During the past approximately 10 years, BLM has issued 447 leases throughout the state, covering 372,600 acres. On all of that land, only 40 wells have been drilled, many of which were not productive. All of the dry holes and several that were productive only for a short time have already been plugged, and the well sites are in various states of reclamation, depending on how long it has been since abandonment. Approximately eleven leases had 1-2 wells, one lease had 7 wells, one had 17 wells, and the remaining 434 leases have not seen any drilling activity. Of the 13 leases where drilling occurred, four leases had at least one successful well. The number of leases and acres specifically in the San Joaquin Valley is not readily available, but it would obviously be smaller.

This 10 year time frame includes periods with both very high and very low oil and gas prices: on average, it is a relevant base period from which reasonable projections can be made. Because prices are significantly higher now than in the past, there is a possibility that drilling on new leases will increase. However, the new leases offered herein still represent only a small fraction of lands already leased and available for drilling, so we do not expect these particular parcels to see anomalous levels of drilling. Data to suggest otherwise is not available. The average number of wells on all of the new leases where drilling has occurred is three wells per lease. There is no data to suggest that these parcels are likely to have more wells than that. Based strictly on the historic levels of activity on new federal leases in California within the last 10 years, during a wide range of product prices, we would expect less than one well total on all of these parcels. However, in order to analyze the sorts of impacts that could happen if a couple of the wildcat (exploratory) wells were successful and required five development wells apiece, we

will analyze the impacts of up to 20 wells being drilled on the lands offered herein. This assumes 10 exploratory wells and 10 development wells, with no particular area being any more likely than another to contain a higher percentage of wells. Approximately 700 acres in parcels 11, 12, 14, 15, and 20 are within the administrative boundary of existing oilfields. Of the 700 acres, a small amount of parcel 14, 2.5 acres, is within the productive zone of an oilfield. The remaining parcels are within 0.5-3 miles of the administrative boundaries of existing oilfields. With the exception of parcels 15 and 23, all of the parcels have been previously leased. Producing wells have been drilled on Parcels 2, 12, 14, and 16, all of which have currently been abandoned as depleted. Parcels 2-7, 10-12, 14, 16, and 20 had a total of 42 wells, nearly all of them dry holes, and all of them currently abandoned. Although it could be argued that some areas are closer to known production than others, and therefore more likely to see development, it could be countered that those same areas have been more effectively "condemned" by the presence of actual unsuccessful exploratory wells that were drilled in the past. Overall, there is not enough data to make any more accurate projections of where activity might occur, and whether it would be successful.

Some of the leases may have more than one well, some only one well and some no wells. Any future development on parcels in this lease auction would therefore represent only a very small portion of the total wells drilled on Federal mineral estate, and is well within the scope of activities which have been previously analyzed in the Caliente Resource Management Plan and the Reasonable Foreseeable Oil and Gas Development. The total maximum number of wells expected on these parcels, 20, is insignificant in comparison to the total number of wells and other activities expected in the area.

For details on the projected miles of seismic lines run, number of wells, amount and size of surface facilities, and total acres of disturbance, as show in the table below.

Table 2. Maximum expected gross surface disturbance on March 11, 2009 lease auction tracts with Preferred Alternative Lease with Limited Surface Use - Protected Species (LSU - Protected Species) and Limited Surface Use – Sensitive Species (LSU – Sensitive Species) Stipulations - Proposed Action).

SURFACE ACTIVITY	NUMBER	ACRES			
		PERMANENT	TEMPORARY	TRANSIENT	TOTAL
In-field Dev. Wells Drilled	10 wells	10			10
Tank Batteries	2	2			2
Exploration Wells, incl. roads	10 wells	20	20		40
Cross Country Seismic Lines	20 miles			30	30
Surface Disturbance, acres		32	20	30	82

The acres of disturbance were based on the following estimates:

DESCRIPTION	NUMBER	UNIT SURFACE DISTURBANCE (ACRES)	TOTAL SURFACE DISTURBANCE (ACRES)
Exploratory Wells			
Well Pads	10 wells	1 acre/well	10 (5 perm, 5 temp)
Roads (1 mile, 20-foot wide with turnouts and cut& fill due to hilly terrain, effective width increased to 25-feet)	10 x 1 miles	3 acre/mile	30 (15 perm, 15 temp) (Assumes 5 of the 10 exploratory wells are dry, and therefore dist. is temporary)
Development			

Well Pads Roads (20-foot wide, 1,000-feet long)	10 10 x 1,000’	0.5 acre/well 2.4 acre/mile	5 (5 perm) 5 (5 perm)
Facilities	2	1 acre/facility	2 (2 perm)
Seismic (12-foot wide road)	20 miles	1.5 acre/mi	30 (30 transient)
TOTAL			32 perm, 20 temp, 30 trans

Note: We will require that significant efforts be made to use existing roads, rights of way, and to minimize disturbance wherever possible. For the last eight exploratory wells drilled on federal minerals in the Bakersfield Field Office area, only one required compensation under the Oil and Gas Programmatic Biological Opinion. However, for purposes of this EA, we are assuming that all of the wells, both exploratory and development may disturb previously undisturbed habitat.

Ongoing Reclamation of Existing Disturbed Surfaces

The potential disturbance of up to 82 acres is expected to be mostly transient or temporary. Although new wells continue to cause surface disturbance, recent trends have shown that the total acres of newly disturbed land are being significantly offset by the large numbers of wells that are being abandoned in this area. According to the CDOGGR, during the last 5 years for which records are available (2003-2007), there were 11,071 wells drilled, of which approximately 10,900 were completed. However, during that same period, 8,600 wells were abandoned. It is reasonable to assume that this trend will continue. Even though the new disturbances will undoubtedly be significantly offset by these reclamation activities, the beneficial effects of that offset were not considered. (Data from the California Department of Conservation, Division of Oil and Gas – see below, and personal phone conversation between Dan Tuttle, CDOGGR, and Jeff Prude, BLM, dated 4-24-08).

Source: ftp://ftp.consrv.ca.gov/pub/oil/annual_reports/2006/0101summary3_06.pdf.

A. Social-Economic

The proposed action will potentially allow new development of these parcels for oil and gas production. This would create 10-15 temporary jobs primarily related to drilling and completion of wells, and will create a demand for supplies and services that will likely come from nearby areas.

B. Visual Resources

All new development will take BLM Best Management Practices into consideration. This includes, but is not limited to, proper site selection, minimizing disturbance, selecting colors that blend with the background, and reclaiming areas that are not in active use. Wherever practical, no new development will be allowed on ridges or mountain tops. Overall, the goal is to not reduce the visual qualities that currently exist.

C. Recreation

There will be no impacts on the limited recreation opportunities as a result of this action. The parcels with federal surface ownership have limited or no public access.

Proposed Action Alternative – Impacts on Critical Elements

Resources in addition to those discussed below were considered as a part of the scoping process. Resources were dropped from further consideration once it was determined that there was minimal potential for them to sustain significant impacts. The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order, and must be considered in all environmental assessments. Those elements that are affected are discussed in the table and detailed in the narratives below.

Table 3. Critical elements of the human environment subject to requirements specified in statute, regulation, or executive order, and must be considered in all environmental assessments.

CRITICAL ELEMENT	AFFECTED		CRITICAL ELEMENT	AFFECTED	
	YES	NO		YES	NO
Air Quality	X		T & E Species	X	
ACEC's*	X		Wastes, Hazard/ Solid		X
Cultural Resources		X	Water Quality		X
Floodplains	X		Wetlands/Riparian		X
Environmental Justice		X	Wild and Scenic Rivers		X
Farmland	X		Wilderness		X
Native American Concerns		X	Weeds		X

***ACEC's (Area of Critical Environmental Concern) and other Special Management Areas** (Parcel 23 is part of the Alkali sink ACEC. The remaining parcels identified in this EA are not in or adjacent to any ACEC areas and are not in or adjacent to the Carrizo Plain National Monument).

D. Air, Soil, Water

1. Impacts to Air Quality

Introduction: Impacts would be in the form of gaseous and particulate matter that is emitted into the air as a result of the activities associated with oil and gas lease development. All of the pollutants subject to analysis are addressed in federal, state and local laws, statutes, regulations and rules. The federal and state ambient air quality standards define the criteria pollutants that are part of the emissions that are typically analyzed. In addition to the criteria pollutants, there are criteria for air toxics, hazardous air pollutants (HAPs), Prevention of Significant Deterioration (PSD), fugitive dust and regional haze.

The analysis is based upon various activities' potential to emit. The analysis is further limited by the need to look at changes in emissions that would occur as a result of the proposed action. Many similar regional activities that produce emissions would not be impacted by the proposed action and would not be addressed in this analysis. The activities associated with the proposed action that would have an impact on air quality include construction activities at the well pad, establishing vehicle routes, vehicle access, drilling operations, development, production, and rights-of-way. Changes in these activities would result in changes in disturbance rates to soil surfaces and would result in changes in PM10 and PM2.5 emissions. In addition, combustion emissions and other gaseous emissions including ozone precursors

such as nitrous oxides and reactive organic gases would be produced. Based upon the potential to emit and emissions that are likely to be affected by the proposed action, this analysis primarily addresses the particulate emission PM10 and the ozone precursor emissions. In addition, these two pollutants are important because the affected areas are classified as federal nonattainment areas for PM2.5 and ozone (both 1-hour and 8-hour).

Planning Assumptions for Air Quality: State Implementation Plans (SIPs) are prepared for most of the federal nonattainment areas. These SIPs are designed to result in compliance with the NAAQS by federal deadlines. The SIPs are implemented through a series of rules. In addition, air quality is highly regulated by a number of additional federal, state and regional regulations and rules. These regulations and rules apply to many of the activities in the proposed action. These activities would be required to be conducted in compliance with the regulations and rules. As the new air plans for PM2.5 standards are developed, activities would be conducted in compliance with those plans also. A certain degree of uncertainty exists as to the exact development schedules, location of wells, which wells would produce, the number of wells that would be drilled and a number of other factors which are addressed in the RFD. This analysis is based on the same assumptions as to a normal expected activity level as reflected in the discussion in the RFD.

Expected Impacts: The proposed action could ultimately result in a number of activities which generate emissions. Project emissions include direct emissions of nitrogen oxides (NOx), sulfur oxides (SOx), and Volatile organic compounds (VOC) (which are precursor emissions for ozone and PM2.5), carbon monoxide (CO), particulate matter smaller than 10 microns (PM10), and particulate matter smaller than 2.5 microns (PM2.5). These emissions are associated with combustion sources and fugitive sources associated with exploration, drilling, production and abandonment such as seismic exploration/diesel drill rig engines, drill pad construction equipment (e.g., dozers, backhoe, grader, etc.), temporary production flares, remedial well work, equipment trucks, hauling of liquids, drill rig crew trucks/vehicles, portable lift equipment, portable testing equipment and temporary and permanent production facilities. In addition, PM10 will be released during the drill pad construction phase and from the daily ingress and egress of vehicles on the unpaved access roads. The primary emission sources during any new construction at the drill sites and on rights-of-way would be from heavy equipment exhaust and fugitive dust. Other emission sources will occur during the operation and maintenance of these leases and rights-of-way. These sources include oil facilities, gas facilities, operator vehicle traffic, and gas powered oil well pumping units.

The expected emissions from the proposed action would be low both in relation to the overall activity in the region, and by itself. Over the next ten years the proposed action is projected to result in permanent disturbance of less than 32 acres, temporary disturbance less than 20 acres, transient disturbance less than 30 acres, and the development of up to 20 new wells. As noted previously, this is an unlikely scenario, and would require as many new wells on these few parcels as there have been on the last 445 parcels. Using our proposed action's maximum estimates for oil and gas development, the estimated emissions for 20 wells that are steam enhanced would be less than 15,056 pounds per year of volatile organic compounds (VOC). VOCs are compounds that are the precursor to ozone. According to the San Joaquin Valley Unified Air Pollution Control District (*SJVUAPCD*) 15,056 pounds of VOCs per year is below the de minimis level of 10 tons per year for VOCs.

An emission formula and emission factor was provided by Air Quality Engineer Leonard Scandura of the *SJVAPCD*. The formula is **E = A x EF** where E= emissions, A= activity or source, and EF is the constant emission factor. Based on a maximum of 20 wells during the next 10 years (2 wells per year), and assuming half of the exploration and all of the development wells are productive, the net number of new permanent wells would be 1.5 wells per year. By the end of 10 years, there would be 15 new permanent wells. The emission factor for a steam-enhanced oil well is 2.75 pounds of VOCs per day. Plugging in the numbers our formula is as follows:

E= 15 wells x 2.75 lbs of VOC/day

E= 41.25 lbs of VOC/day

E= 41.25 lbs of VOC/day x 365 days per year= 15,056 lbs of VOC/year (7.5 tons/year).

According to the California Air Resources Board website (www.arb.ca.gov) the estimated total emissions for oil and gas production statewide are 74.19 tons per day, which equals 27,079 tons of VOC/year. The maximum VOC/year from wells drilled on these leases is 7.5/11,133 = 2.77% of the total average emissions of VOCs contributed by oil and gas production in California.

According to the California Air Resources Board emission factors for NOx (nitrogen dioxide), SOx (sulfur dioxide), PM10 and PM 2.5 are not available for individual wells, but can be calculated using total emission per day calculations that have been attained from the California Air Resources Board website. These emissions totals are shown in the following table, for 2006**Table 4.** Estimated Statewide Annual Emissions from Oil and Gas Production, 2006

SOURCE	VOC (TONS/DAY)	NOX (TONS/DAY)	SOX (TONS/DAY)	PM10 (TONS/DAY)	PM2.5 (TONS/DAY)
Oil and Gas Production	47.87	2.77	0.28	0.06	0.06
Oil and Gas Production (combustion)	26.32	20.39	1.95	1.76	1.81
Total (tons/day)	74.19	23.16	2.23	1.82	1.87

This table illustrates the projected emissions for oil and gas production sources in tons of pollutants per day. The most current emissions data reported by CARB are for the year 2006, and were published in 2007. Oil and gas production is defined as any source used in the production of oil and gas, including but not limited to wells, pumps, tanks, roads, maintenance traffic, and heaters. Steam generators are calculated separately and are represented on the table as oil and gas production (combustion). For our analysis, these numbers are summed together to get the total amount of pollutants emitted by oil and gas production.

For the purpose of this exercise, there are a number of assumptions. First, as a maximum, it is assumed that the emission numbers in the above table are for wells alone and not for all of the other equipment and sources previously described. In making this assumption, BLM is conceding that these estimates are above actual individual well emission factors, and the numbers calculated are higher than actual emission factors that would be found if the appropriate data were available. We are also using a 45,000 oil and gas well estimate gathered from the California Division of Oil and Gas (www.consrv.ca.gov/DOG) for the number of total oil and gas wells in the San Joaquin Valley. We are also assuming, as previously stated, that the 20 wells predicted in this EA will be spread over 10 years, with an average of two wells being drilled per year. Finally, we are using the values for Kern County, CDOGGR District 4, and the San Joaquin Valley APCD in analyzing the environmental effects related to air quality under this EA. This is necessary because the data are not available on an individual field or well by well basis. This will not cause a statistically significant error because all of the parcels are in Kern County. With this said, the following emission calculations are for each of the listed pollutants in the above table with the exception of VOC which was calculated in the above section.

Using a derivative of the E= A x EF formula and the information from Table 4 above, the emission calculations for NOx from oil and gas production are as follows:

23.16 tons NOx/day = 46,320 lbs NOx/day

EF = E/A

EF = 46,320 lbs NOx/day / 45,000 total wells = 1.03 lbs NOx/day/well

Based on a maximum of 20 wells during the next 10 years, there is an average of 2 wells per year. At the end of 10 years, there would be a maximum of 15 producing wells (see previous discussion).

Consequently, total NOx emissions are:

E = 15 wells x 1.03 lbs NOx/day = 15.5 lbs NOx/day

15.5 lbs NOx/day x 365 days/year = 5,657.5 lbs NOx/year

This is 0.033 % (15.5 lbs/day / 46,320 lbs NOx/day) of the total oil and gas production emissions for NOx, and below the de minimis level for NOx of 10 tons/year/stationary source.

The emission calculations for SOx are as follows:

2.23 tons SOx/day = 4,460 lbs SOx/day

EF = E/A

EF = 4,460 lbs SOx/day / 45,000 total wells = 0.10 lbs SOx/day/well

At the end of 10 years, the 15 wells (see previous discussion) would emit a maximum of 1.5 lbs SOx/day (see below):

E = 15 wells x 0.10 lbs SOx/day = 1.5 lbs SOx/day

1.5 lbs SOx/day x 365 days/year = 547.5 lbs SOx/year

This is 1.5 lbs/day / 4,460 lbs SOx/day = 0.034 % of the total oil and gas production emissions for SOx, which is below the de minimis level for SOx of 10 tons/year/stationary source.

The emission calculations for PM10 are as follows:

1.82 tons PM10/day = 3,640 lbs PM10/day

EF = E/A

EF = 3,640 lbs PM10/day / 45,000 total wells = 0.081 lbs PM10/day/well

At the end of 10 years, the 15 wells (see previous discussion) would emit a maximum of 1.22 lbs PM10/day (see below):

E = 15 wells x 0.081 lbs PM10/day = 1.22 lbs PM10/day

1.22 lbs PM10/day x 365 days/year = 445 lbs PM10/year

This is 1.22 lbs/day / 3,640 lbs PM10/day = 0.034 % of the total oil and gas production emissions for PM10, which is below the de minimis level for PM10 of 15 tons/year/stationary source.

The emission calculations for PM2.5 are as follows:

1.87 tons PM2.5/day = 3,740 lbs PM2.5/day

EF = E/A

EF = 3,740 lbs PM2.5/day / 45,000 total wells = 0.083 lbs PM2.5/day/well

At the end of 10 years, the 15 wells (see previous discussion) would emit a maximum of 1.25 lbs PM2.5/day (see below):

E = 15 wells x 0.083 lbs PM2.5/day = 1.25 lbs PM2.5/day

1.25 lbs PM2.5/day x 365 days/year = 456 lbs PM2.5/year

This is 1.25 lbs/day / 3,740 lbs PM10/day = 0.033 % of the total oil and gas production emissions for PM2.5, which is below the de minimis level for PM2.5 of 15 tons/year/stationary source.

In regards to both PM10 and PM2.5, the *SJVUAPCD* does not have a standard for calculating emissions for individual wells (source: conversation 2007 with Leonard Scandura, SJVUAPCD). Therefore, there is not enough information to make accurate predictions in terms of how much PM10 and PM2.5 will be emitted during well pad construction. Although we cannot make these predictions with any true certainty, we do know that the SJVUAPCD requires all construction work to follow rule eight which details requirements for PM10, PM2.5, and fugitive dust minimization. More specifically under rule 8021, any project that is over 5 acres in non-residential areas will need to have a dust control plan that details particulate matter minimization (www.valleyair.org). Projects less than 5 acres are considered by the SJVUAPCD as insignificant in regards to PM10 and PM2.5 emissions. According to our predictions no project associated with this proposed action will be greater than 5 acres in total disturbance.

BLM requires that the lessee/operator take on the responsibility for ensuring that all operations are properly permitted with the appropriate agencies, and that the operations are in compliance with all mobile and stationary source guidelines. Mitigation measures would include such items as dust control using application of water or pre-soaking and limiting traffic speed on unpaved roads. It would also include such items as use of low-emission construction equipment, use of low sulfur fuel, and/or use of the existing power transmission facilities, where available, rather than temporary power generators. The failure of the lessee/operator to follow the air quality rules would likely result in fines and could also lead to the loss of the BLM and air district authorizations.

Indirect effects of point source emissions from legal and illegal motorized vehicle and off highway vehicle use associated with these lease offerings as proposed would be negligible. As detailed in the current conditions, the San Joaquin Valley Air Basin is in nonattainment for ozone, PM10 and PM2.5. NOx emissions are already 147 tons per day from all activities in Kern County alone. These 147 tons of NOx per day includes emissions from hundreds of thousands of automobiles and trucks, and significant other industrial and agricultural sources. Although it is well known that legal and illegal off highway vehicle use contributes to emissions, any increased use from this proposed action would be immeasurable.

With respect to climate change, climate plays a significant role in the production of ozone. Sunlight and high temperatures are a major catalyst in reactions between VOCs and NOx in the production of ozone. With an increase in overall temperature, we can expect to have more hot days and less precipitation that will lead to a higher production of ozone.

Source: www.arb.ca.gov
www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_YR=2006&F_DIV=4&F_SEASON=A&SP=2007~&F_AREA=AB&F_AB=SJV#3)

Conformity:

The USEPA rules require federal agencies to determine whether a proposal conforms to the existing SIPs. USEPA rules state that an analysis is not necessary when the total emissions do not exceed de minimis levels, comply with the SIP and do not exceed 10% of the regional emissions. As the emissions are well below de minimis levels, comply with the SIP and are well below 10% of regional emissions, no further conformity analysis is necessary.

2. Impacts to Soil Quality

The parcels associated with the proposed action are on both disturbed and undisturbed surface. We are projecting that no more than 20 wells will be drilled on these parcels over the next ten years. The impacts due to this disturbance will be reduced because most or all surface disturbing activities will be subject to rehabilitation and mitigation measures that are included in sundry notices and applications for permit to drill. Impacts associated with development of these leases may include erosion due to the development of well pads on slopes and other unstable geography. These impacts will be mitigated on a site-specific basis using best management practices and proper well placement. Impacts from spills/contamination are expected to be very localized because all activities will be subject to spill prevention and control plans, and any contamination will be removed/mitigated as required in those plans.

3. Impacts to Water Quality

Many of the parcels are in areas where there are or may be fresh water aquifers. All such aquifers will be fully protected by using standard oilfield practices such as requiring a string of casing to be cemented across all fresh water aquifers and by requiring compliance with all appropriate laws, regulation, and BLM policies, including, but not limited to, state and federal Clean Water Act(s), Memoranda of Understanding (MOUs) between BLM, EPA, CDF&G, and CDOGGR, and compliance with Regional Water Quality Control Board requirements.

Where there is a threat to water quality or where water quality does not meet state standards, coordination must occur with the regional water quality control board(s). Where aquatic or riparian habitat may be impacted, coordination with CDF&G must occur. All parcels that contain any water bodies (streams, lakes, springs, etc.) must have adopted Best Management Practices (BMP) for all activities associated with oil and gas operations that could affect water quality. A list of areas where there are aquifers that are considered to be fresh can be found in Volumes I, II, and/or III of California Oil and Gas Fields, published by the California Conservation Division[1].

Although there are no ponds, lakes, or streams on the parcels that contain water year round, Parcels 17, 19-20, and 22 contain unnamed, ephemeral creeks and/or drainages, based on the United States Geological Survey (USGS) 7.5 minute quadrangle maps. In addition, irrigation ponds occur on parcels 3, 7, and 13, while canals cross parcels 1 and 13. The California Aqueduct and a canal bisect Parcel 8 and the northern portion of Parcel 11. An unnamed perennial stream occurs in the northern portion of Parcel 15. Approximately 1.5 miles of Chico Martinez Creek, an ephemeral stream, and 0.75 miles of an unnamed tributary to Chico Martinez Creek occur on Parcel 16. Conditions of approval will be attached to permit approvals that require protective measures to be taken where spills or other contamination are potentially a concern to surface or underground water.

4. Climate Change

The amount of greenhouse gases (CH_4 and CO_2) generated by the predicted development of 20 wells over the next ten years is expected to be minimal. In 2007, approximately 1,500 new oil and gas wells were drilled in the San Joaquin Valley, District 4. The total number of producing oil and gas wells in District 4 has stayed relatively constant at approximately 45,000 because the number of new wells is largely offset by the abandonment of old wells (CDOGGR annual reports, 2001-2006). The current leasing proposal

[1] CD-1; California Oil & Gas Fields, Volume I: Central California, 1998; Volume II: Southern, Central Coastal, and Offshore California, 1992; and Volume III: Northern California, 1982; California Department of Conservation, Division of Oil, Gas, and Geothermal Resources; Sacramento, CA. (Publications TR10, TR11, and TR12 in PDF Format.)

represents less than 0.2 percent of the annual new well activity for the area and a much smaller fraction of the existing well population.

In 2006, total CH_4 emissions from all U.S. petroleum operations were 28.4 Tg CO_2 Eq. (approximately 31 million tons) (EPA 2008). Of this, over 95% stems from crude oil production, less than 1% from transportation, and slightly more than 2% from refining operations. Only rough estimates of the amount of greenhouse gasses produced by the 20 wells are possible since greenhouse gas emissions are based on the amount of oil produced (EPA 1999). If we assume that a new well produces an average of 4,000 barrels per year, annual methane emissions would be 25 lbs (.01 tons) per well (see EPA 1999 for formulas). Emissions from these wells would be expected to be lower than the national average because of vapor recovery systems and other pollution controls mandated by the San Joaquin Valley Air Pollution Control District. Values for carbon dioxide emissions are expected to follow a similar pattern.

The level of greenhouse gas associated with the proposed action (possible 20 wells) is not expected to detectably influence climate change.

Environmental impacts of greenhouse gas emissions from oil and gas consumption are not effects of the proposed action as defined by Council on Environmental Quality, and thus are not required to be analyzed under NEPA. Greenhouse gas emissions from consumption of oil and gas are not direct effects under NEPA because they do not occur at the same time and place as the action. They are also not indirect effects because oil and gas leasing and production would not be a proximate cause of greenhouse gas emissions resulting from consumption. Also, because the impacts of consumption are not direct or indirect effects of the proposed action, a cumulative impact analysis would not reveal an incremental effect attributable to this proposed leasing decision.

5. Floodplains

Parcel numbers 3, 17, through 22 (portions) are in areas within 100-year floodplains.

Parcel numbers 1, 2, 4 through 23 are in areas of minimal flooding.

Parcel numbers 17 through 22 are both within 100-year floodplains and minimal flooding.

Regardless of where on the parcel development may be proposed, site-specific NEPA analysis would identify measures to minimize the risk of flood damage to oil and gas facilities/wells and oil spills or other contaminations entering any streams.

E. BIOLOGICAL RESOURES INCLUDING RIPARIAN AND WETLANDS

Impacts to Habitat from Oil and Gas Activities

A likely effect of new oil and gas activities on these lease parcels would be the loss or alteration of habitat. BLM estimates that wells, roads, facilities and seismic exploration could result in permanent impacts to 32 acres, temporary impacts to 20 acres and transient impacts to 30 acres. This totals 82 acres within the 4,402 acres being offered in this lease sale (Table 2). These estimates of habitat loss or alteration are within the range expected and analyzed in the Caliente RMP, EIS Ch. 4 and Biological Opinion.

Of the 4,402 acres, 2,275 acres are presently native or recovered lands, 2,103 acres are under active or recent cultivation and 25 acres are otherwise developed. If all 82 acres of disturbance were to occur on native lands this would amount to approximately 4% of the native lands offered under this lease auction.

Impacts to habitat on cultivated lands would depend on whether the lands are under active cultivation or are fallowed at the time of any development. If the land is under active cultivation, impacts to native vegetation and wildlife are likely to be minimal. If the lands are fallow, the area may be a bare area of

cultivated soil or a weedy field of non-native plants. If wildlife (such as burrowing mammals or birds) reoccupies fallow fields, their habitat could be impacted by oil development and exploration activities

Impacts to habitat on native lands would depend on the native vegetation type and the topography of the lease parcels. The lease parcels contain a combination of grassland and shrubland vegetation communities. Habitat disturbance in grasslands generally has less of an impact than disturbance in shrublands since shrubs take longer to become re-established. Shrublands also support a greater diversity and number of wildlife species as shrubs provide a high variety of food and cover. As the diversity of habitat structure increases from grassland to shrubland, so does the wildlife species richness. Thus, there is more potential for impacts to wildlife in shrubland communities, than in grassland communities. The impacts associated with well pads and roads, however, would be very site-specific and are not expected to significantly affect these habitats at the community scale. The footprint of the disturbance is also expected to be a small proportion of the habitat area.

Topography can play a role in the amount of surface disturbance that results from well and road construction. Flat areas will require little or no cut and fill, and road routes are not constrained by topography. In hilly areas, cut and fill may be required which disturbs additional land. Roads routes may have to travel longer distances to meet engineering requirements and may also require cut and fill. Areas lacking roads near potential drilling sites will have more disturbance, as the entire access route will need to be constructed rather than just a short spur route from an existing road.

Approximately 2,204 acres are relatively flat and includes 2,162 acres of cultivated land and 42 acres of native land. The cultivated lands have relatively good access with existing roads in the interior or on the edge of the parcels. Well pad and road construction on these cultivated parcels will result in minimal impacts to biological resources due to the presence of existing roads and the currently disturbed nature of the parcels. The 42 acres of flat, native land includes parcel 23 in the Alkali Sink Unit. This parcel will have a No Surface Use Stipulation and is bordered on three sides by active agriculture. Well pad and road construction associated with the Alkali Sink Unit should have minimal impacts to biological resources since the adjacent disturbed lands will most likely be used for any development.

The remaining 2,192 acres are hilly terrain. These hilly parcels are likely to require new road construction to access well pads unless the wells are located adjacent to an existing road. While many of these lease parcels have one or more existing roads, it is likely that new roads would be required to reach the proposed well pad locations. As the terrain becomes steeper and hilly, more side slope, cut and fill construction may be required. Restoration of side slope, cut and fill pads and roads is more difficult. Impacts in such areas, even if the well is abandoned and the road restored, may persist as altered, but functional, habitat, for several decades.

Habitat restoration also takes longer in shrublands as opposed to grasslands. Grassland habitats may resemble their pre-project conditions in 2 to 5 years. Shrublands may require 5 to 15 years. The parcels in this lease auction are generally grassland and shrubland habitats that return to their pre-project composition and structure relatively easily and quickly.

Certain type of soils and exposures may take longer to restore. Vegetation on exposed, dry shale areas may be slow to recover. Such areas, however, have naturally sparse vegetation and much exposed soil.

Impacts to Species from Seismic Exploration

The projected 20 miles of seismic exploration would result in about 30 acres of surface disturbance, based on a 12’ wide road. BLM typically requires receiver lines to be hand carried, helicopter-transported, or transported by light all-terrain vehicles. This eliminates cross-country truck travel on the receiver lines. The source points are typically located along lines using buggy-type vibroseis vehicles, or buggy-mounted or heliportable drills for shot holes. If exploration is conducted using continuous vibroseis source points, there would be about 30 acres of surface disturbance. The use of shot holes or heliportable

drills in hilly terrain would reduce this disturbance estimate. Monitoring and post-project reports from previous geophysical projects indicates that seismic projects result in transitory impacts to soil and vegetation. Transitory impacts generally recover within one growing season if normal rainfall is received. Larger shrubs can be damaged by cross-country source vehicle travel, and may take several years (3 to 10) to recover or reoccupy the travel route. In most cases, off road vehicle use is limited to one or two passes. Use of ATV's rather than full size vehicles also helps to reduce soil disturbance.

If a seismic project is proposed within endangered species habitat, it would be subject to ESA compliance. In early 2008, BLM and USFWS have initiated a Programmatic Biological Opinion for geophysical exploration that requires pre-activity surveys, take-avoidance and mitigation measures for geophysical operations. The implementation of these measures would minimize impacts to habitat features used by listed species and minimize habitat disturbance. While seismic activities may disturb and displace wildlife during the operations, in many instances, small mammals are observed to dig into vibroseis footprints and vehicle tracks following project impacts.

Impacts to Species from Oil and Gas Activities

Potential impacts to plants include direct mortality from earth excavation or crushing by vehicles. Adverse impacts could also result from soil erosion resulting in loss of the supporting substrate for plants, or from soil compaction resulting in reduced germination rates. Impacts to plants occurring after seed germination but prior to seed set could be particularly harmful as both current and future generations would be adversely affected. Weeds which are introduced and/or promoted by soil disturbing activities compete against and displace native vegetation.

Development associated with oil and gas activities has the potential to affect rare plants. Soil disturbing activities directly affect species by destroying habitat, churning soils, impacting biological crusts, disrupting seedbanks, burying individual plants, and generating sites for undesirable weedy species. Weeds may be introduced during construction and operation of the lease. Roads generate weedy habitat along their edges, as well as avenues for weed invasion into unoccupied territory. Dust generated by construction activities and travel along dirt roads can affect nearby plants by depressing photosynthesis, disrupting pollination, and reducing reproductive success. Oil or other chemical spills could contaminate soils as to render them temporarily unsuitable for plant growth until cleanup measures were fully implemented. If cleanup measures were less successful, longer term impacts could be expected.

Potential impacts to animals, including listed species, include direct mortality or injury, loss of dens or burrows, displacement, and human disturbance. Direct mortality or injury could result from vehicle strikes, or from collapsed dens and burrows resulting in animals being crushed or entombed. Burrows and dens could be destroyed or damaged by vehicle traffic, particularly heavy equipment. Animals could be displaced during project activities. Such displacement of animals into unfamiliar areas could increase the risk of predation and increase the difficulty of finding required resources such as food and shelter. Human disturbance could result in displacement of animals, even though dens and burrows may not be directly impacted. Human disturbance also might alter the behavior of animals (e.g., activity periods, space use) resulting in increased predation risk, reduced access to resources, and reduced breeding success. Project activities during the spring breeding season could increase the potential for adverse impacts. Animals could also become entrapped in oil spills, leaks, sumps or improperly maintained well cellars or other facilities. These potential impacts are within the range analyzed in the Caliente RMP, EIS Ch. 4 and Biological Opinion.

Roads and large areas of disturbance can be a barrier to movement for some animal species. Animals in the San Joaquin Valley suite of sensitive animal species, however, generally do not have difficulty crossing roads or disturbed areas. It is not unusual to observe kangaroo rats, kit foxes, antelope squirrels or blunt-nosed leopard lizards crossing roads. This tendency does expose these animals to vehicle strikes, especially on paved roads with higher vehicle speeds. The impact of roads, large areas of disturbance,

barriers and vehicle strikes is within the range analyzed in the Caliente RMP, EIS Ch. 4 and Biological Opinion.

Structures such as utility poles, buildings, and pumping units may provide perches for raptors. Addition of such structures in flat terrain may increase predation rates on small mammals and other prey species. The types of structures typically found in oilfields, however, do not tend to provide nesting structures for raptors, including ravens. Introducing nesting structures can have a greater impact on prey species since much more prey is taken by raptors that are rearing young, and the nest site is continuously occupied for the season increasing the duration and frequency of the predation effect. The effect of introducing structures that will only serve as perches is not expected to be significant as such perches are likely to only occasionally be used for hunting.

Individual projects would be subject to NEPA and ESA review. If a project is determined to adversely affect listed species, the project would be subject to compliance with the Oil and Gas Programmatic Biological Opinion (BO) or a project level consultation. Under the Oil and Gas Programmatic Biological Opinion, listed species and habitat surveys are required prior to BLM authorizations and surface disturbing activities. Habitat features used by listed plants and animals, special status plant populations, and important habitats are avoided as required in the BO. Direct incidental take is avoided for San Joaquin kit fox and blunt-nosed leopard lizards, and direct take is avoided to the greatest extent practicable for the other listed animals species (rarely resulting in direct take). Impacts to the habitats supporting these species are mitigated through the Biological Opinion's requirement that "compensation habitat" be acquired and managed as habitat in perpetuity in an agency-approved off-site location. The BO requires that three acres be acquired for each acre subject to permanent disturbance and 1.1 acres be acquired for each acre of temporary disturbance. Beginning in October 2008, BLM also agreed to require a 4:1 compensation ratio for permanent habitat disturbance within the Western Kern County Kit Fox Core Area. The BO also requires that each acre of BLM listed species habitat on federally owned surface be "replaced", acre for acre, since the BLM lands are considered conserved lands by the Recovery Plan and Draft Kern Valley Floor Habitat Conservation Plan.

In addition to NEPA and ESA review, all new oil and gas leases would be subject to the "Limited Surface Use – Protected Species" and "Limited Surface Use – Sensitive Species" stipulations. Parcel 23 would also be subject to No Surface Use Stipulation since it is within the Alkali Sink Area of Critical Environmental Concern. Leasing of lands under these constraints will provide strong protection for protected species and special status species.

Effects to Federally Listed and Proposed Species, and Critical Habitat

Several federally listed species (Bakersfield cactus, California jewelflower, Kern Mallow, San Joaquin woollythreads, San Joaquin adobe sunburst, blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, San Joaquin kit fox) may occur on or in the vicinity of many of the parcels. In addition, the recently delisted Hoover's woollystar may occur on or in the vicinity of several of the parcels. If exploration or development occurs on one of these parcels, the proposed action may affect listed species.

Section 7 of the Endangered Species Act requires a federal agency to complete Formal Consultation with the USFWS prior to undertaking an action which may affect a listed species. Formal Consultation addressing the impacts of oil and gas leasing, exploration and development, to these species, was completed on March 31, 1997 (Caliente RMP Biological Opinion 1-1-97-F-64). The U.S. Fish and Wildlife Service concluded that oil and gas leasing, exploration and development, as proposed by the Caliente RMP, was not likely to jeopardize the continued existence of these species. The proposed action is in compliance with the Caliente RMP, and thus, is consistent with the March 31, 1997 Caliente RMP BO. Should an exploration or development proposal be submitted for any of these leases, it will be subject to additional site specific ESA review as described above.

There will be no effect to critical habitat as none of the parcels include designated or proposed critical habitat.

Relationship to San Joaquin Valley Endangered Species Recovery

The Caliente RMP specifies that that BLM land within the San Joaquin Valley be managed to contribute to regional conservation goals. Lands that have been identified by the Kern Valley Floor Habitat Conservation Plan and the San Joaquin Valley Recovery Plan as part of the regional conservation strategy are managed by BLM as reserves (red zone lands) or corridors (green zone lands). Of the lands offered in this sale 278 areas (Derby Acres Unit) are within reserves (red zone) and 1,920 acres are within corridors (green zone). The remaining 2,204 acres are not part of the San Joaquin Valley strategy.

Within reserve and corridor lands, BLM requires mitigation and compensation for development activities. Disturbance of habitat is compensated at a rate of 1.1 acre for every acre temporarily disturbed, and 3 acres for every acre permanently disturbed. In addition, disturbance to BLM surface requires an additional replacement factor of 1 acre for every acre disturbed and disturbance within the Western Kern County Kit Fox Core Area requires a 4:1 compensation ratio. Species surveys, avoidance of habitat features and implementation of measures to minimize take are also standard requirements. As an additional safety net, BLM has established a limit to the amount of disturbance on parcels in reserves and corridors. Disturbance on reserve lands is limited to 10% and on corridor lands to 25%.

The RFD estimates that up to 82 acres of disturbance could result from wells, roads, seismic exploration and other oilfield development. If all 82 acres of disturbance were to occur in the red zone (corridor), this could amount to approximately 29% of the red zone land offered in the lease auction. It is, however, unlikely that all 82 acres would occur in the red zone due to the 10% limit on disturbance in the red zone. If all 82 acres of disturbance were to occur in the green zone (corridor), this would amount to approximately 4% of the green zone land offered in the lease auction. Any disturbance in the red or green zone would require compensation. Additionally, any disturbance to BLM surface would require an additional acre for acre replacement factor, and any disturbance within the Western Kern County Kit Fox Core Area would require a compensation ratio of 4:1.

BLM's program for the management of reserve and corridor lands has been reviewed and approved by the USFWS as part the Caliente RMP Biological Opinion 1-1-97-F-64 and the Oil and Gas Programmatic Biological Opinion 1-1-01-F-0063.

Species Specific Impacts

Table Biology 1 and Table Biology 2 lists the Federally listed, state listed and BLM sensitive species with the potential to occur on the offered lease parcels.

Federally and State Listed Species

Bakersfield cactus. Bakersfield cactus has a possibility to occur in the general area of the Mt. Poso Unit. Since Bakersfield cactus is easily identified, survey and avoidance should minimize or eliminate impacts to the species. Under the Oil and Gas Programmatic B.O., Bakersfield cactus is to be avoided by a 50-foot buffer.

California jewelflower. Two of the proposed lease parcels are within the historic range of California jewelflower, but no extant populations are known within Kern County. Under the Oil and Gas Programmatic B.O., any populations discovered will be avoided by a 50-foot buffer. Jewelflower plants can be identified during flowering season, typically February to March.

Kern Mallow. There is a slight chance that Kern Mallow might be encountered in the Derby Acres Unit. Under the Oil and Gas Programmatic B.O., populations are to be avoided, to the greatest extent possible, otherwise, measures, such as delaying surface disturbance until after seed set, collection of seed, reseeding, and stockpiling of topsoil, may be required to minimize impacts.

San Joaquin woolythreads. There is potential for woolythreads to be found within the Lost Hills, Derby Acres, and Chico Martinez Units. Under the Oil and Gas Programmatic B.O., populations are to be avoided, to the greatest extent possible, otherwise, measures, such as delaying surface disturbance until after seed set, collection of seed, reseeding, and stockpiling of topsoil, may be required to minimize impacts.

San Joaquin Adobe Sunburst. San Joaquin adobe sunburst occurs in the foothills of the Sierra Nevada and has the possibility of occurring within the Mt. Poso Unit. This species was not included in the oil and gas programmatic biological opinion, thus, any development with the potential to impact the adobe sunburst would have to acquire a new biological opinion from FWS. Population avoidance measures would have to be incorporated into any development plan. Formal consultation will occur before approving drilling permits in this area if there is a possibility that sunburst populations may be affected by the permit.

Hoover's woollystar. Hoover's woollystar may be found on the Lost Hills, Derby Acres, and Chico Martinez Units. Hoover's woollystar could be adversely impacted by earth excavation, off-road vehicle traffic, erosion and spills. It is projected that the post-leasing activities will result in temporary or transient habitat disturbance. Hoover's woollystar can quickly colonize disturbed areas and is expected to re-colonize temporary or transient disturbance areas. Survey and avoidance measures will also be implemented for Hoover's woolly-star to further minimize impacts to this species.

Blunt-nosed leopard lizard. Blunt-nosed leopard lizards may occur within the Lost Hills, Chico Martinez and Derby Acres Units. Potential impacts to blunt-nosed leopard lizards include direct mortality, loss or alteration of habitat, and harassment. Blunt-nosed leopard lizards are active during the day, which enhances the threat of some impacts, such as vehicle strikes. Project activities could destroy burrows used by blunt-nosed leopard lizards. Lizards can become entrapped or buried inside destroyed burrows as well. Discharge of waste water could drown lizards using drainages. Lizards can become entrapped or drown in oil or tarry substances. Improperly covered well cellars, buried valve boxes, buckets and vertical pipe sections can act as pitfall traps and entrap lizards. Pre-construction surveys and implementation of mitigation measures that are part of the Oil and Gas Programmatic Biological Opinion will reduce the potential for these impacts. BLM lease operating standards (e.g. waste water discharge policies, proper maintenance of equipment and facilities, etc) will also reduce the potential for these impacts.

Giant kangaroo rat. Potential impacts to giant kangaroo rats include direct mortality, loss of burrow systems, loss or alteration of habitat, and harassment. The construction and maintenance of wells pads, access roads, pipelines, and other oil field structures may trap or bury kangaroo rats in their burrows. Kangaroo rats can also drown or become entrapped in spilled oil or tarry substances. Kangaroo rats may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

Giant kangaroo rats have the potential to occur in the Chico Martinez and Derby Acres Units. Pre-construction surveys and implementation of mitigation measures that are part of the Oil and Gas Programmatic Biological Opinion will reduce the potential for impacts. Giant kangaroo rats are mostly active at night and most vehicle traffic is expected during daylight hours. This combination will reduce the chances of a vehicle strike.

Tipton kangaroo rat. Impacts to Tipton kangaroo rats would be similar to those described for the giant kangaroo rat. Tipton kangaroo rats have the potential to occur in the Lost Hills and Alkali Sinks Units.

San Joaquin kit fox. San Joaquin kit fox may occur within all units. Potential impacts to San Joaquin kit fox include direct mortality, loss of dens, loss or alteration of habitat, human disturbance, and exposure to oil field chemicals. Construction of well pads, access roads, and associated oil field facilities may trap or bury foxes, particularly if the construction occurs on or near a den site. Dens are ecologically important to kit foxes. Since kit fox use multiple dens, the occasional loss of a den is not expected to be significant. Activities near or impacts to natal dens could have more impact, particularly if such impacts occur while young pups are present. Disturbance to dens, especially natal dens, should be minimized due to survey and avoidance measures required by BLM for all actions.

Approximately 798 acres on parcels 16 through 22 in the Chico Martinez and Derby Acres Units are within the Carrizo Plain and Western Kern County core populations. The U.S. Fish and Wildlife Service identified three core populations as important for kit fox recovery. One goal for the core populations is to protect natural lands with appropriate land use and management. In their recent 5-year status review, the U.S. Fish and Wildlife Service noted the low amount of habitat conserved within the Western Kern County core population as a concern. Of the 798 acres, all are native lands, 520 acres within the Carrizo Plain core population and 278 acres within the Western Kern County core population. Project activities will result in some habitat loss. The habitat loss is not expected to conflict with recovery plan goals as individual projects are expected to be relatively small (less than 3 acres on average) compared to the home range of a kit fox (average 1144 acres) and widely dispersed over space and time. Standard kit fox mitigation measures will be applied as appropriate to all BLM authorization. Compensation for habitat disturbance will also be required. Within the Western Kern County core area, compensation will be at a ratio of 4 acres conserved for every acre disturbed beginning October 2008. For all other areas, compensation will be required at a ratio of 3:1 with an additional replacement amount of 1:1 if the surface is BLM.

Kit fox have been entrapped in well cellars that are not properly covered. In 1981 two kit fox pups were rescued from a concrete well cellar on NPR-2. In 1990, the remains of two kit fox pups were recovered from an abandoned well cellar.

The production, transportation, processing and storage of crude oil may result in some spills. The washes and drainages in which spilled oil collects are also primary travel routes and foraging areas for kit fox and other wildlife. Kit foxes could also drown in pooled oil, or become mired in tarry substances. In 1982, two kit fox pups were found dead in spilled oil on NPR-2 as a result of activities by a lessee. BLM has strict requirements for prompt containment and clean-up of such spills. This should help to reduce the impacts of oil spills on kit foxes.

Vehicle strikes are likely to occur as a result of project related traffic. Between 1983 and 1986, vehicles were the cause of about 6% of known kit fox deaths. As a comparison, during the same time period, coyotes were responsible for most (45%) of the known kit fox deaths.

Kit foxes are frequently observed near oil field facilities and commonly use developed areas. They do not seem to be particularly sensitive to human disturbance.

San Joaquin Antelope Squirrel. San Joaquin antelope squirrel have the potential to occur in the Lost Hills, Chico Martinez and Derby Acres Units. Impacts to the San Joaquin antelope squirrel would be similar to those described for the giant kangaroo rat. Antelope squirrels are, however, more widely distributed and are more likely to occur on or near a project site than giant kangaroo rats. Pre-construction surveys and implementation of mitigation measures that are part of the Oil and Gas Programmatic Biological Opinion will reduce the potential for many of these impacts. To comply with the California Endangered Species Act, BLM has developed “take avoidance” measures that will be

incorporated into the Oil and Gas Programmatic Biological Opinion. Compliance with these take avoidance measures will minimize impacts to antelope squirrel.

BLM Sensitive Animal Species

Mountain Plover. Wintering mountain plovers have the potential to make use of fallow agricultural lands in the Lost Hills Unit. Potential impacts to mountain plover include temporary displacement by human activities associated with oilfield construction and geophysical exploration. Plovers are opportunistic in their foraging and would likely make use of some other foraging area. Any development would have a minor impact on mountain plovers.

Burrowing Owl. The burrowing owl has the potential to occur in all units. Potential impacts to burrowing owls include loss of burrows, entrapment in burrows, and collision with vehicles. Burrowing owl burrows would be treated like potential kit fox dens. Such dens would be monitored for use before destruction or plugging, allowing detection of burrowing owl use. If owl use if detected and the burrow cannot be avoided, burrow destruction or plugging would occur only after the owl has vacated the site. As a result some burrows sites may be lost, but individual owls should avoid becoming entrapped inside burrows.

LeConte's thrasher. LeConte's thrasher has the potential to occur in the Lost Hills, Chico Martinez and Derby Acres Units. Light and moderate oilfield development that maintains saltbush between wells and facilities, and tall saltbush along drainages provides suitable habitat for LeConte's thrasher. The Oil and Gas Programmatic contains measures to retain saltbush stringers and minimize the removal of saltbush. The combination of the development limits and the saltbush conservation measures in the Oil and Gas Programmatic are expected to maintain LeConte's thrasher habitat.

Short-nosed kangaroo rat. Impacts to short-nosed kangaroo rats would be similar to those described for the giant kangaroo rat. Short-nosed kangaroo rats are also widely distributed, and like the antelope squirrel, are more likely to occur on or near a project site than giant kangaroo rats. Short-nosed kangaroo rats have the potential to occur in the Chico Martinez and Derby Acres Units.

San Joaquin pocket mouse and Tulare grasshopper mouse. The San Joaquin pocket mouse has the potential to occur in the Lost Hills and Mt. Poso Units. Tulare grasshopper mouse has the potential to occur in all units. Impacts to these species would be similar to those described for the giant kangaroo rat.

Pallid bat. The pallid bat has the potential to occur in the Chico Martinez unit. Impacts to the pallid bat are not expected as roost sites (rocky grottos, buildings, mines) are not expected to be impacted by development activities and very little foraging habitat would be altered.

BLM Sensitive Plant Species. Impacts to sensitive plants would be dependent on the location of the disturbance relative to populations of the species in question. The construction of roads, well pads, and similar development could destroy plants or disrupt continuity between populations. New weedy species could be introduced and weeds would benefit from the additional moisture generated by runoff from roads and pads. To minimize impacts to BLM sensitive species, mitigation measures would consider the type of impact, the rareness of the species, the population size and distribution, and the species' response to disturbance.

Indirect Effects to Biological Resources as a result of Climate Change

Since the level of greenhouse gas associated with the proposed action (possible 20 wells) is not expected to detectably influence climate change, indirect effects to biological resources are not expected. The effects to biological resources from climate change are discussed instead under cumulative effects.

RIPARIAN AND WETLAND HABITAT

Riparian habitat is not known to occur on any of the lease parcels. The Lost Hills Unit contains wetland habitat associated with agricultural (irrigation ponds, canals and the California Aqueduct). Direct impacts to wetland areas should be minimal. BLM regulations prohibit operations in wetland areas unless BLM specifically approves such activity in a Surface Use Plan of Operations.

Indirect impacts include possible spills into wetland areas. Pipelines, wells or tanks could leak oil or other fluids into wetland areas. Water quality and wildlife could be adversely affected. Most companies promptly respond to spills upon discovery, but damage can occur until discovery and containment.

F. CULTURAL RESOURCES

Approval of this document will have no adverse effect upon cultural resources (per compliance with Section 106 of the National Historic Preservation Act). This proposal and analysis deal only with the action of leasing, and does not consider ground disturbing activities. Any subsequent realty or oil and gas projects or development will be subject to a separate NEPA document and compliance with Section 106 of the National Historic Preservation Act. Native American consultation was completed for the properties proposed for leasing in this document, and no traditional cultural properties or heritage related issues were identified. The potential exists for the Native American community to identify heritage related issues in the future as specific actions are proposed.

As oil and gas development actions or associated realty actions are proposed, the areas of potential effect (APE) will be defined and assessments of the impacts upon cultural resources will be undertaken. NEPA and Sec. 106 compliance will be completed on all undertakings. In the event that cultural resources are identified within a project area, an evaluation of significance will occur and steps will be taken to mitigate impacts to that resource. Mitigation most frequently involves site avoidance, but may rarely include data recovery or compensation. It should be noted that BLM has discretional control over mitigation stipulations and/or avoidance measures imposed on a project. Although a lessee has a right to develop a lease, BLM may require development activities to be moved up to 200 meters in any direction. This should allow nearly all sites to be avoided. Sites that cannot be avoided will be evaluated for listing on the National Register and mitigation measures will be instituted if the site is found eligible. Should development uncover subsurface sites, the lessee is required to halt all work until the site can be evaluated and proper mitigation and avoidance measures identified.

G. Livestock Grazing

There are no substantial direct or indirect impacts anticipated to livestock grazing operations or opportunities from the proposed action because such grazing use could occur concurrently. Should development activities on the surface lands leased under this action be proposed, subsequent site-specific NEPA documentation will address any impacts and notify affected federal grazing lessees.

H. Lands

Leasing BLM lands for oil/gas exploration and production does not typically impact land uses in this area, because the chances of a successful new find are so slim. However, leasing can sometimes cause conflicts with other surface uses that may be taking place on the lands. This is especially possible if the leased lands are split estate, where the surface estate is privately owned and the mineral estate is federally owned and under the jurisdiction of BLM. Surface owners are often not aware of the Federal ownership of the mineral estate, or are not aware of the implications of the Federal ownership. Along with the ownership of the minerals the Federal government retains the right to use any part of the surface for exploration or development. These “surface entry rights” can cause distress for private surface owners who do not wish to see new roads and well pads on their land. Adjacent private lands can also be

impacted due to leasing, in that new road access to the leased areas is sometimes necessary. Although the responsibility for obtaining access to leased areas is the lessee's and not BLM's, leasing can sometimes cause an indirect impact to adjacent lands due to the need for road access.

Oil and Gas and Other Mineral Exploration and Development

This alternative will have a beneficial effect on mineral exploration and development, since the land will be offered for competitive auction. The practical utilization of the lands will have a positive local effect in the generation of long term jobs and revenues to the State and county. The royalties and rentals from competitive auctions are also a dependable source of long term income for the Federal government. The impacts from this particular auction may be small, including an unknown (but probably relatively small) amount of new reserves, due to the small amount of acreage offered. However, the positive action of the auction would provide the industry with increased opportunity for exploration, potentially resulting in increased stability and profitability of domestic companies.

In most instances, application of the LSU – Protected Species and LSU – Sensitive Species stipulations would not prevent surface occupancy for the entire lease. That is, an alternative site or other mitigation or compensation measure would probably be available that would still allow the lessee to drill and develop the lease.

I. Farmland

Parcels 1, 3, 4, 5, 6, 9, 10, 11, and 14 are located on acreage designated as farmland. The parcels are on split-estate lands that appear to have some agriculture rows of crops and land that has been cultivated for planting. Although there may be local or state laws that require the lease holder (lessee) to compensate the landowner for any crop loss or damage caused by the development of the leased lands, the only compensation provided by federal law on these split estate lands is the value of loss of crops and tangible improvements that are related to stock-raising; such as corn, hay, barn and fences for livestock. Crops include those for feeding domestic animals, such as grasses, hay, and corn, but not plants unrelated to stockraising. Tangible improvements include those relating to domestic, agriculture and stockraising uses, such as barns, fences, ponds or other works to improve the ulitization of water, but not those associated with nonagriculture development.

Proposed Action Alternative – Cumulative Impacts

In the Caliente Resource Management Plan and EIS, published December 1996, BLM analyzed the overall effects of oil and gas activities in the area. The analyses and conclusions contained in those documents are still valid, and current cumulative impacts are still significantly under the level of cumulative impacts that were projected/analyzed in those documents. There have not been and are not expected to be any additional impacts in the parcels covered in this EA that would change those conclusions. In addition, it should be noted that there have been many lease sales since 1998, each of which projected various numbers of wells, both exploratory and development, as well as other types of activities that would cause surface disturbance. Out of 447 leases that have been issued since November 1998, only 13 leases have seen any drilling at all. Exact amounts of disturbance are not available. Nearly all the projected disturbance on those leases never occurred.

Cumulative Impacts to Minerals

For a more complete discussion of the types of activities associated with exploration, drilling, and production, in addition to the environmental consequences to Minerals and the cumulative impacts on Minerals see the Caliente RMP/EIS, Ch. 5 Pg. 33 to which this document is tiered. These discussions include Reasonable Foreseeable Development scenarios (RFDs) and impacts, both general and cumulative. Many of these activities are also described in Appendix C.

Cumulative Impacts to Biological Resources

The southern San Joaquin Valley has experienced an increasing human population growth (22% in Bakersfield between 1990 and 2000) and ongoing land use changes across the landscape. There has been large scale conversion of agricultural lands to urban/industrial expansion in the metropolitan Bakersfield, Wasco, Delano, Arvin, and Shafter communities. In the past 10 years, oilfield exploration and development has increased in the CDOGGR oilfield boundaries. There has been extensive new development initiated in the shallow diatomite oil-bearing formations. Several cogeneration and power plants have been constructed in the foothill regions of the Sierra and inner Coast ranges. There has also been more rural housing development in the foothills north and northeast of Bakersfield.

It has been estimated that the leasing of the 4,402 acres for oil and gas resources may result in an estimated surface disturbance of up to 82 acres. According to our predictions no project associated with this proposed action will be greater than 5 acres in total disturbance. It is possible that several projects could occur simultaneously, but would likely be spread among the parcels by considerable distances.

The cumulative effects of the leasing and subsequent development would be additive, but insignificant, to the land uses that may occur in the foreseeable future. Foreseeable land uses that the BLM anticipates in or near the parcel areas is ongoing livestock grazing, continued agriculture, dispersed recreation activities where there is public access and ongoing oil and gas activities within the existing oil fields. The livestock grazing would continue at current levels and would be authorized in a manner to meet the standards for rangeland health. Such grazing practices should maintain ecological health of the BLM natural lands where grazing is authorized. Livestock grazing on the private grazing lands within the project is also expected to continue at current practices. The BLM and private grazing is considered to be generally compatible with maintaining the landscape for biological resources and habitat for special status animals in the southern San Joaquin Valley.

The southern San Joaquin Valley is experiencing continued demand for dispersed recreation in the form of off highway vehicle (OHV) use on public and private lands, including those in oil fields. Such impacts may occur in the Chico Martinez and Derby Acres Units. To date, most OHV use has been on existing roads with occasional cross country travel that creates new habitat disturbance. The remaining parcels in this lease auction do not have ready public access that would make them susceptible to OHV use. The OHV use is additive surface disturbance in the oil fields and would be considered in calculating overall habitat disturbance objectives described below. Additional mitigation and restoration would be conducted in these parcels in order to maintain habitat objectives in preserve and corridor areas.

Approximately 700 acres in parcels 11, 12, 14, 15, and 20 are within the administrative boundary of existing oilfields. Of the 700 acres, a small amount of parcel 14, 2.5 acres, is within the productive zone of an oilfield. The remaining parcels are within 0.5-3 miles of the administrative boundaries of existing oilfields. With the exception of parcels 15 and 23, all of the parcels have been previously leased. While additional surface disturbance would result in further habitat loss if the new disturbance is located in an undisturbed area, the small size of impact would not compromise the integrity of red zone preserves, green zone linkages, or special status populations due to implementation of the Programmatic Biological Opinion. The onsite impacts would be subject to site-specific NEPA analysis and ESA Section 7 compliance. If the site-specific analysis concluded that the proposed activities would likely jeopardize the continued existence of a listed or proposed species, or if the proposed action is inconsistent with recovery needs of a listed species as identified in an approved Recovery Plan, development of the lease would be precluded by the Limited Surface Use Stipulation – Federally Proposed and Listed Species. In addition, site-specific impacts would be mitigated to levels below significance through a variety of mitigation measures: survey, take avoidance and mitigation of site-specific impacts; the total habitat disturbance would be off-set with off-site habitat compensation; and the landscape-level function of the preserves and linkages would be maintained.

Within the Southern San Joaquin Valley, the BLM, CDFG, FWS, and Kern County have developed a landscape conservation strategy that has identified core preserve areas and habitat linkages consistent with the Recovery Plan for Upland Species of the San Joaquin Valley. This strategy includes disturbance limits on preserve areas (called red zones) of 10% and 25% in habitat linkages (called green zones). Maintenance of these preserves and linkages below the habitat disturbance objectives are considered thresholds of significance of cumulative impacts. The BLM monitors the amount of habitat disturbances from oil and gas activities and other surface-disturbing activities on BLM lands. If surface disturbance approaches or exceeds these disturbance thresholds, remedies are implemented to avoid new surface disturbances and/or conduct habitat restoration to bring disturbance levels below the thresholds. Thus, the BLM would implement measures to reduce cumulative effects on listed species by implementing site-specific mitigation measures and landscape-level habitat maintenance so that oil and gas activities, livestock grazing, OHV use and other surface disturbing activities on BLM lands would be below a cumulative effects level that would impair conservation or recovery of the San Joaquin Valley listed species.

Cumulative Impacts to Biological Resources from Climate Change

Climate models predict that, as a result of global warming, Southern California will tend to be hotter and drier in the future, with an increase in the frequency and duration of drought (Christensen et al. 2007). Drier conditions for the San Joaquin Valley means that overall, there will be less vegetative growth. A shift in vegetation zones is also expected. Oak and Juniper woodlands will give way to scrublands, and scrublands to grasslands. Future grasslands will have more areas of bare soil and vegetation will be sparser. Woodlands may disappear from some portions of the San Joaquin Valley and become restricted to the higher elevations of the San Joaquin Valley and surrounding foothills. Plant communities and animal guilds may migrate upward or northward in elevation, as the general area becomes drier. With a slight drying, the wild oat grasslands in the northern part of the San Joaquin Valley would be expected to shift to brome-dominated grasslands. As precipitation levels and recharge decline, some springs will dry up, while others will diminish in flow. This may have consequences for those plants and animals depending on these water sources.

The result of this change in the southern San Joaquin Valley may result in conditions that are similar to those currently experienced during a series of drought years when very little rain falls in the region. During current drought conditions, herbaceous vegetation cover and production decreases, while the amount of bare ground increases. In some locations, individual plants and stands of perennial shrubs become dormant or even die due to increased stress.

A more arid environment would have varied effects on the San Joaquin Valley suite of species. Currently, during a series of extremely low rainfall years when annual plant production is reduced or absent and food resources become scarce, populations of blunt-nosed leopard lizards and small mammals, including giant kangaroo rat, Tipton kangaroo rat and San Joaquin antelope squirrel, tend to decline (Germano and Williams 2005, Rathbun 1998, Williams et. al. 1993). The decline continues until more widespread germination of annual plants resumes (Germano and Williams 2005, Rathbun 1998, Williams et. al. 1993). In the predicted more arid climate, during years with a low to average rainfall, herbaceous plant production would be reduced, and grass cover would be sparser and less persistent than what currently occurs during average rainfall years. Annual vegetation that is lower and sparser may partially benefit the small mammals and lizards of the San Joaquin Valley since persistent non-native plant cover reduces habitat suitability for these species (Germano et. al. 2001). Population levels of these species will reflect the benefits of a more open structure versus the liabilities of decreased food resources.

Since San Joaquin Valley animal species have evolved under desert conditions they may be better able to persist in a more arid climate than other species. During drought conditions, populations decline but do not completely disappear. Populations recover once rainfall sufficient for germination occurs. So long as future drought periods do not exceed the time period that source animals can persist, the San Joaquin

Valley suite of species are expected to persist. A more arid climate may also promote a more open and sparser vegetation pattern that these species favor. The non-native grasses and filaree that have invaded the region over the past two hundred years may become less persistent and dense, favoring a habitat structure the San Joaquin Valley species prefer.

No Action Alternative – Direct, Indirect and Cumulative Impacts

Should the No Action alternative be selected, these lands would not be leased for oil and gas at the present time. They would remain available for competitive leasing in the future, should circumstances change to make that option worth re-considering. If these parcels are not leased, then foreseeable future resources and uses, as well as their current rates of change, would remain as described in the Affected Environment. Cumulative impacts of management activities with the no action alternative on public lands would remain as they exist presently and as described in the Affected Environment section of this document.

Socio-Economic – No additional impacts would occur.

Visual Resources – No additional impacts would occur.

Recreation – The no action alternative would have no additional effect on the limited recreation opportunities.

Air, Soil, and Water – There would be no additional impacts to air, soil, and water since these leases would not be offered.

Biological Resources – No additional impacts would occur.

Cultural Resources – No additional impacts would occur.

Livestock Grazing – No additional impacts would occur.

Lands and Farmland – No additional impacts would occur.

Oil and Gas – The no action alternative would not comply with the Energy Policy Act of 2005 and the Mineral Leasing Act of 1920 and several existing regulations and policies to manage lands for multiple uses and to make all suitable lands available for oil and gas leasing unless they are withdrawn from leasing under the Mineral Leasing Act. Failure to make these lands available for leasing and potential subsequent development would also result in the loss of potential additional reserves of oil and/or gas. The amount of lost reserves would be difficult to predict at this time without additional data.

V. MITIGATION

Appropriate mitigation measures are incorporated into the proposed action and no additional mitigation should be necessary.

VI. Consultation and Coordination

Native American Contacts

Mr. Gene Albitre, President - Native American Heritage Preservation Council of Kern County

Mr. Neil Peyron, Chairperson - Tule River Reservation

Mr. Clarence Atwell, Chairperson - Santa Rosa Rancheria

Mr. Robert Duckworth, Salinan Representative

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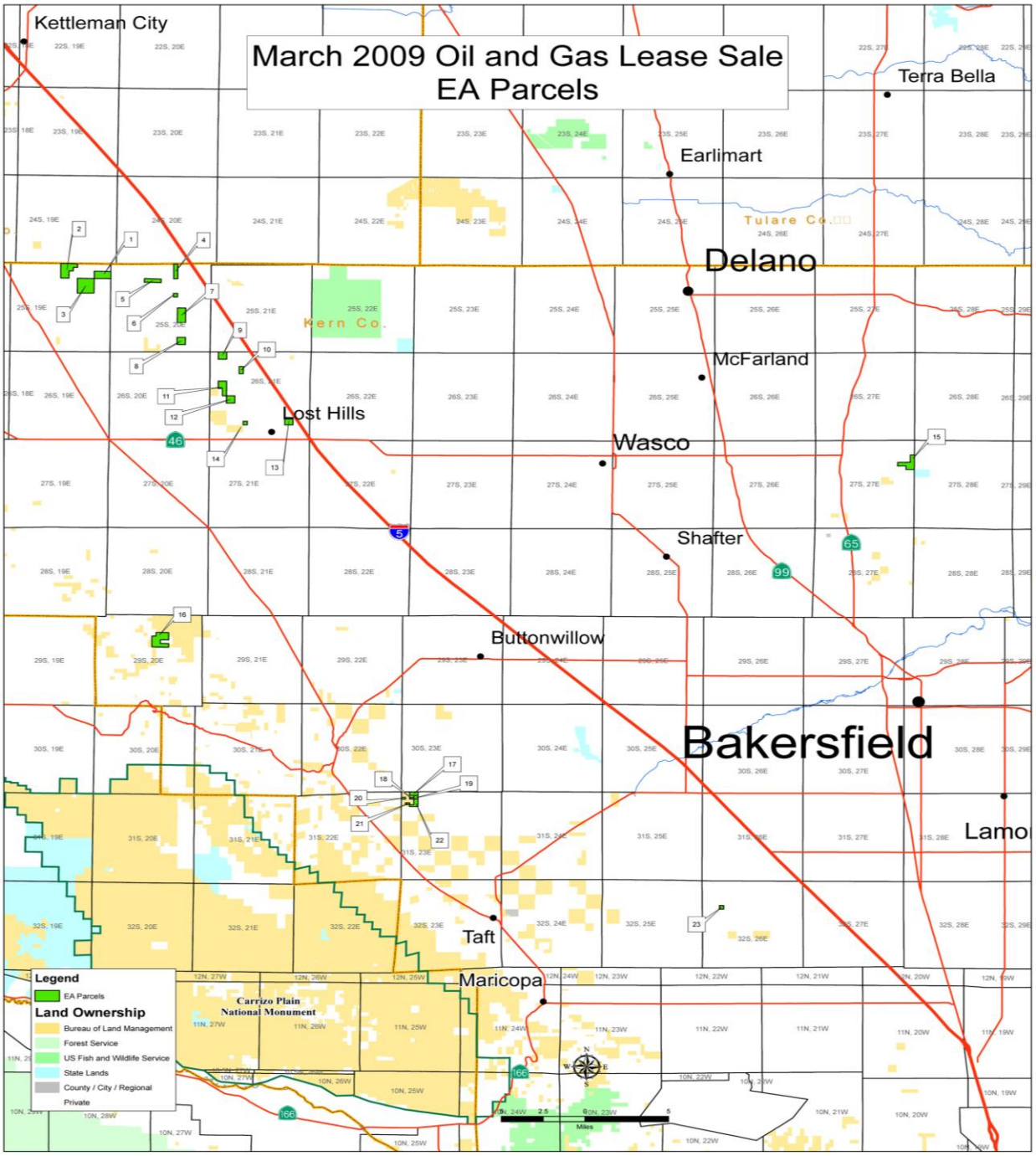
APPENDIX A - Description of Lease Sale Parcels

Following is a map showing the general location of the parcels analyzed in this EA. A more detailed map can be found at http://www.blm.gov/ca/st/en/fo/bakersfield.html

Map 1. March 11, 2009 Oil and Gas Competitive Lease Auction Parcels



The following public domain lands all located within the Bakersfield Field Office administered lands, are subject to filings in the manner specified in the applicable portions of the regulations at 43 CFR, Subpart 3120. These parcel numbers will be different from those on the actual Lease Sale Notice, and officially parcelized for the day of the auction.

Table 1. March 11, 2009 Oil and Gas Competitive Lease Auction Parcels

NO.	LOCATION	COUNTY	ACRES	TYPE
1	T. 25 S., R. 19 E., MD Mer., Sec. 1, S2;	Kern	320.00	Split Estate Lands Subject to Special Stipulations
2	T. 25 S., R. 19 E., MD Mer., Sec. 3, W2 Lot 1 NE/4, Lot 2 NE/4, Lots 1 & 2 NW/4, SW/4;	Kern	439.64	Split Estate Land Subject to Special Stipulations
3	T. 25 S., R. 19 E., MD Mer., Sec. 11, All;	Kern	640.00	Split Estate Land Subject to Special Stipulations
4	T. 25 S., R. 20 E., MD Mer., Sec. 3, Unnum Lot 1, S2NE/4, SE/4;	Kern	324.08	Split Estate Land Subject to Special Stipulations
5	T. 25 S., R. 20 E., MD Mer., Sec. 9, N2N2;	Kern	160.00	Split Estate Land Subject to Special Stipulations
6	T. 25 S., R. 20 E., MD Mer., Sec. 15, NE/4NE/4;	Kern	40.00	Split Estate Land Subject to Special Stipulations
7	T. 25 S., R. 20 E., MD Mer., Sec. 23, W2;	Kern	320.00	Split Estate Land Subject to Special Stipulations
8	T. 25 S., R. 20 E., MD Mer., Sec. 35, NW/4;	Kern	160.00	Split Estate Land Subject to Special Stipulations
9	T. 26 S., R. 21 E., MD Mer., Sec. 6 Lots 1 & 2 NE/4;	Kern	158.49	Split Estate Land Subject to Special Stipulations
10	T. 26 S., R. 21 E., MD Mer., Sec. 8, E2NE/4;	Kern	80.00	Split Estate Land Subject to Special Stipulations
11	T. 26 S., R. 21 E., MD Mer., Sec. 18, NE/4, E2SE/4;	Kern	240.00	Split Estate Land Subject to Special Stipulations
12	T. 26 S., R. 21 E., MD Mer., Sec. 20, NW/4;	Kern	160.00	SplitEstate Land Subject to Special Stipulations
13	T. 26 S., R. 21 E., MD Mer., Sec. 26, SE/4;	Kern	160.00	Split Estate Land Subject to Special Stipulations
14	T. 26 S., R. 21 E., MD Mer., Sec. 28, SW/4SW/4;	Kern	40.00	Split Estate Land Subject to Special Stipulations
15	T. 27 S., R. 27 E., MD Mer., Sec. 12, E2NE/4, N2SW/4, SE/4;	Kern	320.00	Split Estate Land Subject to Special Stipulations
16	T. 29 S., R. 20 E., MD Mer., Sec. 10, NE/4, E2NW/4, SW/4NW/4, SW/4, S2SE/4;	Kern	520.00	Public Land Subject to Special Stipulations
17	T. 31 S., R. 23 E., MD Mer., Sec. 6, Lot 2 NE/4;	Kern	78.28	Public/Split Estate Land Subject to Special Stipulations
18	T. 31 S., R. 23 E., MD Mer., Sec. 6, S2W2 Lot 1 NE/4;	Kern	20.00	Public Land Subject to Special Stipulations
19	T. 31 S., R. 23 E., MD Mer., Sec. 6, E2 Lot 1 NE/4;	Kern	40.00	Split Estate Land Subject to Special Stipulations
20	T. 31 S., R. 23 E., MD Mer., Sec. 6, S2W2 Lot 1 NW/4;	Kern	19.89	Public Land Subject to Special Stipulations
21	T. 31 S., R. 23 E., MD Mer., Sec. 6, N2S2 Lot 1 SW/4	Kern	20.00	Public Land Subject to Special Stipulations
22	T. 31 S., R. 23 E., MD Mer., Sec. 6, E2SE/4, S2SW/4SE/4;	Kern	100.00	Public/Split Estate Land Subject to Special Stipulations

23	T. 32 S., R. 26 E., MD Mer., Sec. 8, Lot 1;	Kern	41.70	Public Land Subject to Special Stipulations

APPENDIX B - Special Lease Stipulations

Stipulation No. 1 - Limited Surface Use - Protected Species: All or a portion of this lease is within the range of one or more plant or animal species that are either listed as threatened or endangered, or are proposed for such listing by the U.S. Fish and Wildlife Service (USFWS).

The lessee is notified that time frames for processing applications may be delayed beyond established standards to allow for species surveys, and consultation or conferencing with the USFWS. Notice is also given that surface-disturbing activities may be moved or modified, and that some activities may be prohibited during seasonal time periods. Surface-disturbing activities will be prohibited on the lease only where:

a. The proposed action is likely to jeopardize the continued existence of a listed or proposed species, or

b. The proposed action is inconsistent with the recovery needs of a listed species as identified in an approved USFWS Recovery Plan.

Prior to the authorization of any surface-disturbing activities, a preliminary environmental review will be conducted to identify the potential presence of habitat for these species. Authorizations may be delayed until completion of the necessary surveys during the appropriate time period for these species. The lessee should be aware that the timing of the surveys is critical, in that some species can only be surveyed during a brief period each year.

The Bureau of Land Management (BLM) may need to initiate consultation or conference with the USFWS if the site inspection concludes that a listed or proposed species may be affected by the proposed activity. The lessee should be aware that the USFWS has up to 135 days to render their biological opinion, and that there are provisions for an additional 60-day extension. Offsite habitat protection or enhancement for wildlife or vegetation (compensation) may be required by the USFWS when habitat is disturbed. The consultation may also result in some restrictions to the lessee's plan of development, including movement or modification of activities, and seasonal restrictions. Surface-disturbing activities will be prohibited on the lease if the consultation or conference concludes that either of the conditions identified in a or b above exist.

Stipulation No. 2 - Limited Surface Use - Sensitive Species: All or a portion of this lease is within the range of one or more plant or animal species that are either Federal candidates for listing as threatened or endangered (Federal Candidate), or are listed by the State of California as threatened or endangered (State Listed), or are designated by the Bureau of Land Management (BLM) as Sensitive (Bureau Sensitive).

The lessee is notified that time frames for processing applications may be delayed beyond established standards to allow for species surveys and coordination with the USFWS and California Department of Fish and Game. Notice is also given that surface-disturbing activities may be relocated beyond the standard 200 meters but not more than 1/4 mile and that surface disturbing activities may be prohibited during seasonal time periods.

Prior to the authorization of any surface-disturbing activities, a preliminary environmental review will be conducted to identify the potential presence of habitat for these species. Authorizations may be delayed until completion of the necessary surveys during the appropriate time period for these species. The lessee should be aware that the timing of the surveys is critical, in that some species can only be surveyed during a brief period each year. The BLM may need to coordinate with the USFWS or the California Department of Fish and Game if the site inspection concludes that a Federal Candidate, State Listed, or Bureau Sensitive species may be affected by the

proposed activity. Coordination may delay application processing beyond established time frames.

To prevent or reduce disturbance to Federal Candidate, State Listed, or Bureau Sensitive species, surface operations may be moved up to 1/4 mile and surface-disturbing activities may be prohibited during seasonal time periods.

Stipulation No. 3 – No Surface Use

This lease is within an area that contains unique or significant natural or cultural values. To prevent or reduce disturbance to unique or significant natural or cultural values, No Surface Use is allowed on the lease.

Table Biology 1.

Federal & State Listed, and BLM Sensitive animal species with potential to occur on the lease parcels.

Species	Blunt-nosed leopard lizard	Giant kangaroo rat	Tipton kangaroo rat	San Joaquin kit fox	San Joaquin antelope squirrel	Mountain Plover	Burrowing owl	Le Conte's thrasher	Short-nosed kangaroo rat	San Joaquin pocket mouse	Tulare grasshopper mouse	Pallid Bat
Status	**FE, SE**	**FE, SE**	**FE, SE**	**FE, ST**	**ST**	**BLM Sensitive**	**BLM Sensitive**	**BLM Sensitive**	**BLM Sensitive**	**BLM Sensitive**	**BLM Sensitive**	**BLM Sensitive**
Lost Hills	P		P	P	P	P	P	P		P	P	
Mt. Poso				P			P			P	P	
Chico Martinez	P	P		P	P		P	P	P		P	P
Derby Acres	P	P		P	P		P	P	P		P	
Alkali Sink			K	P			P				P	

Status

FE – Federally Endangered
FT – Federally Threatened
SE – State Endangered
ST – State Threatened
BLM Sensitive – BLM California Sensitive Species

Occurrence

Known – CNDDB or other record on parcel
Potential – parcel is within species range or known occurrence nearby

Table Biology 2.

Federally Listed & BLM sensitive plant species with potential to occur on the lease parcels.

Species	status	Lost Hills	Mt. Poso	Chico Martinez	Derby Acres	Alkali Sink
Bakersfield cactus	FE,SE		X			
California jewelflower	FE,SE	**X**			X	
Kern mallow	FE				X	
San Joaquin adobe sunburst	FT		X			
San Joaquin woolly threads	FT, SE	**X**		X	X	
Hoover's woollystar	FD	**X**		X	X	X
Munz's layia	BLM SS	X				
recurved larkspur	BLM SS	X	X	X		X
Horn's milk vetch	BLM SS	X				X
Lost Hills crownscale	BLM SS	X			X	
Temblor buckwheat	BLM SS	X		X		
oil neststraw	BLM SS		X		X	
striped adobe lily	BLM SS		X			
diamond-petaled California poppy	BLM SS			X		
heartscale	BLM SS				X	X
Coulter's goldfields	BLM SS					X
Pale yellow layia	BLM SS			X		
Tejon poppy	BLM SS				X	

Status

FE – Federally Endangered
FT – Federally Threatened
FD – Federally Delisted
SE – State Endangered
ST – State Threatened
BLM SS – BLM California Sensitive Species

Biology Table 3.

Federally Listed, Proposed and Candidate Species Designated and Proposed Critical Habitat
Bakersfield Field Office

COMMON NAME	SCIENTIFIC NAME	Status 1		Occurrence 2,3				
		SP	CH	C	V	S	CPNM	FM
Snails								
MORRO SHOULDERBAND SNAIL	HELMINTHOGLYPA WALKERIANA	FE	CH	K	N3	N3		
Fairy Shrimp								
LONGHORN FAIRY SHRIMP	BRANCHINECTA LONGIANTENNA	FE	CH	N1	L1	N3	K	
VERNAL POOL FAIRY SHRIMP	BRANCHINECTA LYNCHI	FT	CH	N1	L1	N3	H	x
VERNAL POOL TADPOLE SHRIMP	LEPIDURUS PACKARDI	FT	CH	N3	N3	N3		x
Insects								
VALLEY ELDERBERRY LONGHORN BEETLE	DESMOCERUS DIMORPHUS	FT	CH	N	L	L		x
KERN PRIMROSE SPHINX MOTH	EUPROSERPINUS EUTERPE	FT		N	K?	L	K	
Fish								
LITTLE KERN GOLDEN TROUT	ONCORHYNCHUS AQUABONITA WHITEI	FT	CH	N3	N3	N1		
CA GOLDEN TROUT	ONCORHYNCHUS MYKISS AGUABONITA	90-day		N3	N3	N2?		
LAHONTAN CUTTHROAT TROUT	ONCORHYNCHUS CLARKI HENSHAWI	FT		N3	N3	N3		N1
PAIUTE CUTTHROAT TROUT	ONCORHYNCHUS CLARKI SELENIRIS	FT		N3	N3	N3		N1
UNARMORED THREESPINE STICKLEBACK	GASTEROSTEUS ACULEATUS WILLIAMSONI	FE	PCH	N1	N3	N3		
TIDEWATER GOBY	EUCYCLOGOBIUS NEWBERRYI	FE	CH	N1	N3	N3		
STEELHEAD (southern CA coast)*	ONCORHYNCHUS MYKISS	FE	CH	N1	N3	N3		
STEELHEAD (south central CA coast)*	ONCORHYNCHUS MYKISS	FT	CH	N1	N3	N3		
Amphibians								
CA TIGER SALAMANDER (SB DPS)	AMBYSTOMA CALIFORNIENSE	FEa	CH	H	N3	N3		
CA TIGER SALAMANDER (Cen CA DPS)	AMBYSTOMA CALIFORNIENSE	FT	CH	H	M1	H		K?
ARROYO SOUTHWESTERN TOAD	BUFO MICROSCAPHUS CALIFORNICUS	FE	CH	LI	LI	N3		
CALIFORNIA RED-LEGGED FROG	RANA AURORA DRAYTONI	FT	CH	M1	L1	L1		
MTN YELLOW-LEGGED FROG (So. CA DPS)	RANA MUSCOSA	FE		N3	N3	N3		
MTN YELLOW-LEGGED FROG (Sierran DPS)	RANA MUSCOSA	FC		N3	N3	N2		N1
Reptiles								
BLUNT-NOSED LEOPARD LIZARD	GAMBELIA SILA	FE		M1	K	K	K	x
ISLAND NIGHT LIZARD	XANTUSIA RIVERSIANA	FT		N1	N3	N3		
GIANT GARTER SNAKE	THAMNOPHIS GIGAS	FT		N3	L1	N3		x
Birds								
CALIFORNIA BROWN PELICAN	PELECANUS OCCIDENTALIS CALIFORNICUS	R		K	N1	N1		
ALEUTIAN CANADA GOOSE	BRANTA CANADENSIS LEUCOPAREIA	FT		N1	L1	N1		
CALIFORNIA CONDOR	GYMNOGYPS CALIFORNIANUS	FE	CH	K	K	K		
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	R		M2	H	M2	K	x
AMERICAN PEREGRINE FALCON	FALCO PEREGRINUS ANATUM	R		K	H	M2		
LIGHT-FOOTED CLAPPER RAIL	RALLUS LONGIROSTRIS LEVIPES	FE		N1	N3	N3		
CALIFORNIA CLAPPER RAIL	RALLUS LONGIROSTRIS OBSOLETUS	FE		N1	N3	N3		
WESTERN SNOWY PLOVER (COAST)	CHARADRIUS ALEXANDRINUS NIVOSUS	FT	CH	H	N3	N3		
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	PT		M2	K	M1	K	x
CALIFORNIA LEAST TERN	STERNA ANTILLARUM BROWNI	FE		H	N3	N3		
MARBLED MURRELET	BRACHYRAMPHUS MARMORATUS	FT	CH	H	N3	N3		
WESTERN YELLOW-BILLED CUCKOO	COCCYZUZ AMERICANUS OCCIDENTALIS	FC		N3	L1	L1		
SOUTHWESTERN WILLOW	EMPIDONAX TRAILLII EXTERMIS	FE	CH	N1	N1	K		

FLYCATCHER								
LEAST BELL'S VIREO	VIREO BELLII PUSILLUS	FE	CH	N2	N2	N2		
Mammals								
BUENA VISTA LAKE SHREW	SOREX ORNATUS RELICTUS	FE		N3	K	N3		
PACIFIC LITTLE POCKET MOUSE	PEROGNATHUS LONGIMEMBRIS PACIFICUS	FE		N3	N3	N3		
MORRO BAY KANGAROO RAT	DIPODOMYS HEERMANNI MORROENSIS	FE	CH	L1	N3	N3		
GIANT KANGAROO RAT	DIPODOMYS INGENS	FE		L1	K	N3	K	x
TIPTON KANGAROO RAT	DIPODOMYS NITRATOIDES NITRTOIDES	FE		N3	K	N3		
FRESNO KANGAROO RAT	DIPODOMYS NITRATOIDES EXILIS	FE	CH	N3	L1	N3		x
SAN JOAQUIN VALLEY WOODRAT	NEOTOMA FUSCIPES RIPARIA	FC		N3	N3	N3		
SAN JOAQUIN KIT FOX	VULPES MACROTIS MUTICA	FE		K	K	K	K	x
FISHER (West Coast DPS)	MARTES PENNANTI	FC	PCH	N3	N3	K		?
CA BIGHORN SHEEP (Sierra Nevada pop.)	OVIS CANADENSIS CALIFORNIANA	FE		N3	N3	N2		N1
GUADALUPE FUR SEAL*	ARCTOCEPHALUS TOWNSENDI	FT		L1	N3	N3		
NORTHERN SEA LION (eastern pop.)*	EUMETOPIAS JUBATUS	FT	CH	K	N3	N3		
SOUTHERN SEA OTTER	ENHYDRA LUTRIS NEREIS	FT		H	N3	N3		
GRAY WHALE*	ESCHRICHTIUS ROBUSTUS	REC		K	N	N		
BLUE WHALE*	BALAENOPTERA MUSCULUS	FE		L	N	N		
HUMPBACK WHALE*	MEGAPTERA NOVAEANGLIAE	FE		H	N	N		

[1] **STATUS**

Species **(SP)**

FE	Endangered
FT	Threatened
FPE	Proposed endangered
FPT	Proposed threatened
FC	Candidate
REC	Recovered
90-day	90-day may be warranted finding
Not warr	Not warranted

Critical Habitat **(CH)**

CH	Designated Critical Habitat
PCH	Proposed Critical Habitat

a 8/19/05 vacated downlisting CBD & EDC vs. USFWS

[2] **OCCURRENCE** on public land

K	Known
H	Highly likely
M1	Likely but limited habitat
M2	Likely but localized species
L	Unlikely
L1	Unlikely – localized species and limited habitat
L2	Unlikely – very localized species
N	Very unlikely
N1	Very unlikely - no suitable habitat
N2	Very unlikely – limited suitable habitat exists but known not to be occupied
N3	Very unlikely – outside of normal range
U	Unknown

[3] Column headings referring to **Management Areas**

C	Coast
V	Valley
S	Sierra

CPNM	Carrizo
FM	Eastern Fresno and Madera counties

Biology Table 4.

California State Listed Only Animal Species

Species that are both federally listed and state listed are NOT repeated on this list

Techachapi slender salamander - *Batrachoseps stebbinsi*
Kern Canyon slender salamander - *Batrachoseps simatus*
Southern rubber boa - *Charina bottae umbratica53*
Swainson's hawk - *Buteo swainsoni*
American peregrine falcon - *Falco peregrinus anatum*
Greater sandhill crane - *Grus Canadensis tabida*
Western yellow-billed cuckoo - *Coccyzus americanus occidentalis*
Willow flycatcher - *Empidonax traillii*
Belding's savannah sparrow - *Passerculus sandwichensis beldingi*
San Joaquin antelope squirrel - *Ammospermophilus nelsoni*

Biology Table 5.

Federally Listed Plant Species in the Bakersfield Field Office

FAMILY	GENUS	SPECIES	SSP/ VAR	SUB TAXON NAME	COMMON NAME	FEDERAL STATUS
Apiaceae	Lomatium	shevockii			Owens Peak lomatium	threatened
Asteraceae	Calycadenia	hooveri			Hoover's calycadenia	endangered
Asteraceae	Cirsium	crassicaule			slough thistle	endangered
Asteraceae	Cirsium	fontinale	var.	obispoense	Chorro creek bog thistle	endangered
Asteraceae	Cirsium	loncholepis			La Graciosa thistle	endangered
Asteraceae	Cirsium	rhothophilum			surf thistle	endangered
Asteraceae	Erigeron	multiceps			Kern River daisy	endangered
Asteraceae	Monolopia	congdonii			San Joaquin woollythreads	endangered
Asteraceae	Pseudobahia	peirsonii			Tulare pseudobahia	threatened
Brassicaceae	Caulanthus	californicus			California jewelflower	endangered
Cactaceae	Opuntia	basilaris	var.	treleasei	Bakersfield cactus	endangered
Ericaceae	Arctostaphylos	morroensis			Morro manzanita	threatened
Fabaceae	Lupinus	nipomensis			Nipomo mesa lupine	endangered
Hydrophyllaceae	Eriodictyon	altissimum			Indian Knob mountainbalm	threatened
Hydrophyllaceae	Eriodictyon	capitatum			Lompoc yerba santa	endangered
Liliaceae	Allium	shevockii			Spanish Needle onion	threatened
Liliaceae	Brodiaea	insignis			Kaweah brodiaea	endangered
Liliaceae	Fritillaria	striata			striped adobe-lily	endangered
Malvaceae	Eremalche	parryi	ssp.	kernensis	Kern mallow	endangered
Malvaceae	Sidalcea	hickmanii	ssp.	parishii	Parish's checkerbloom	candidate
Onagraceae	Clarkia	springvillensis			Springville clarkia	threatened
Polemoniaceae	Eriastrum	Hooveri			Hoover's eriastrum	delisted
Portulacaceae	Calyptridium	pulchellum			Mariposa pussypaws	threatened
Scrophulariaceae	Castilleja	campestris	var.	succulenta	succulent owl's-clover	threatened
Scrophulariaceae	Castilleja	mollis			soft-leaved indian paintbrush	endangered
Scrophulariaceae	Mimulus	gracilipes			slender-stalked monkeyflower	threatened

Biology Table 6.

BLM Sensitive Plant Species in the Bakersfield Field Office

FAMILY	GENUS	SPECIES	SSP/VAR	SUB TAXON NAME	COMMON NAME
Alismataceae	Sagittaria	sanfordii			Sanford's arrowhead
Apiaceae	Cymopterus	deserticola			desert cymopterus
Apiaceae	Eryngium	aristulatum	var.	hooveri	Hoover's button-celery
Apiaceae	Eryngium	spinosepalum			spiny-sepaled button-celery
Apiaceae	Lomatium	shevockii			Owens Peak lomatium
Apiaceae	Sanicula	maritima			Adobe Sanicle
Asteraceae	Baccharis	plummerae	ssp.	glabrata	San Simeon baccharis
Asteraceae	Calycadenia	hooveri			Hoover's calycadenia
Asteraceae	Centromadia	parryi	ssp.	congdonii	Congdon's tarplant
Asteraceae	Centromadia	parryi	ssp.	australis	southern tarplant
Asteraceae	Cirsium	crassicaule			slough thistle
Asteraceae	Cirsium	occidentale	var.	compactum	compact cobwebby thistle
Asteraceae	Cirsium	rhothophilum			surf thistle
Asteraceae	Deinandra	arida			Red Rock tarplant
Asteraceae	Deinandra	halliana			Hall's tarplant
Asteraceae	Deinandra	increscens	ssp.	villosa	Gaviota tarplant
Asteraceae	Deinandra	minthornii			Santa Susana tarplant
Asteraceae	Ericameria	gilmanii			Gilman's goldenbush
Asteraceae	Erigeron	aequifolius			Hall's daisy
Asteraceae	Erigeron	blochmaniae			Blochman's leafy daisy
Asteraceae	Erigeron	inornatus	var.	keilii	Keil's daisy
Asteraceae	Erigeron	multiceps			Kern River daisy
Asteraceae	Eriophyllum	lanatum	var.	hallii	Fort Tejon woolly sunflower
Asteraceae	Grindelia	hirsutula	var.	maritima	San Francisco gumplant
Asteraceae	Heterotheca	shevockii			Shevock's golden-aster
Asteraceae	Lasthenia	conjugens			Contra Costa goldfields
Asteraceae	Lasthenia	glabrata	ssp.	coulteri	coulter's goldfields
Asteraceae	Layia	carnosa			beach layia
Asteraceae	Layia	heterotricha			pale-yellow layia
Asteraceae	Layia	jonesii			Jones' layia
Asteraceae	Layia	leucopappa			Comanche Point layia
Asteraceae	Layia	munzii			Munz' tidy tips
Asteraceae	Madia	radiata			Showy madia
Asteraceae	Malacothrix	saxatilis	var.	arachnoidea	Carmel Valley malacothrix
Asteraceae	Pentachaeta	lyonii			Lyon's pentachaeta
Asteraceae	Pseudobahia	bahiiafolia			Hartwig’s golden sunburst
Asteraceae	Stylocline	citroleum			Oil neststraw
Asteraceae	Stylocline	masonii			Mason neststraw

FAMILY	GENUS	SPECIES	SSP/VAR	SUB TAXON NAME	COMMON NAME
Boraginaceae	Plagiobothrys	uncinatus			Hooked popcorn-flower
Brassicaceae	Caulanthus	amplexicaulis	var.	barbarae	Santa Barbara Jewelflower
Brassicaceae	Caulanthus	coulteri	var.	lemmonii	Lemmon's jewelflower
Brassicaceae	Dithyrea	maritima			Beach spectaclepod
Brassicaceae	Lepidium	jaredii	ssp.	album	Panchoe pepper-grass
Brassicaceae	Lepidium	jaredii	ssp.	jaredii	Jared's peppergrass
Brassicaceae	Lepidium	virginicum	var.	robinsonii	Robinson's pepper-grass
Brassicaceae	Rorippa	gambelii			Gambel's water cress
Brassicaceae	Streptanthus	cordatus	var.	piutensis	Piute Mtns. Jewel flower
Brassicaceae	Twisselmannia	californica			Kings gold
Campanulaceae	Nemacladus	twisselmannii			Twisselmann's nemacladus
Caryophyllaceae	Arenaria	paludicola			marsh sandwort
Chenopodiaceae	Aphanisma	blitoides			Aphanisma
Chenopodiaceae	Atriplex	cordulata			heartscale
Chenopodiaceae	Atriplex	coulteri			Coulter's saltbrush
Chenopodiaceae	Atriplex	depressa			brittlescale
Chenopodiaceae	Atriplex	erecticaulis			Earlimart orache
Chenopodiaceae	Atriplex	joaquiniana			San Joaquin spearscale
Chenopodiaceae	Atriplex	minuscula			lesser saltscale
Chenopodiaceae	Atriplex	pacifica			South Coast saltscale
Chenopodiaceae	Atriplex	serenana	var.	davidsonii	Davidson's saltscale
Chenopodiaceae	Atriplex	subtilis			subtle orache
Chenopodiaceae	Atriplex	tularensis			Bakersfield smallscale
Chenopodiaceae	Atriplex	vallicola			Lost Hills saltbush
Chenopodiaceae	Suaeda	californica			California seablite
Convolvulaceae	Calystegia	subacaulis	ssp.	episcopalis	Cambria morning-glory
Crassulaceae	Dudleya	abramsii	ssp.	bettinae	San Luis Obispo serpentine dudleya
Crassulaceae	Dudleya	abramsii	ssp.	murina	San Luis Obispo dudleya
Crassulaceae	Dudleya	blochmaniae	ssp.	blochmaniae	Blochman's dudleya
Crassulaceae	Dudleya	cymosa	ssp.	marcescens	marcescent dudleya
Crassulaceae	Dudleya	cymosa	ssp.	costafolia	Pierpoint Springs dudleya
Crassulaceae	Dudleya	parva			Conejo dudleya
Crassulaceae	Dudleya	verityi			Verity's dudleya
Cupressaceae	Cupressus	arizonica	ssp.	nevadensis	Arizona Cypress
Cyperaceae	Carex	obispoensis			San Luis Obispo Sedge
Ericaceae	Arctostaphylos	luciana			Santa Lucia manzanita
Ericaceae	Arctostaphylos	osoensis			Oso manzanita
Ericaceae	Arctostaphylos	pechoensis			Pecho manzanita
Ericaceae	Arctostaphylos	pilosula			Santa Margarita manzanita
Ericaceae	Arctostaphylos	purissima			La Purisima manzanita
Ericaceae	Arctostaphylos	refugioensis			Refugio manzanita
Ericaceae	Arctostaphylos	rudis			Sand mesa manzanita
Ericaceae	Arctostaphylos	tomentosa	ssp.	daciticola	dacite manzanita

FAMILY	GENUS	SPECIES	SSP/VAR	SUB TAXON NAME	COMMON NAME
Ericaceae	Arctostaphylos	tomentosa	ssp.	eastwoodiana	Eastwood's manzanita
Ericaceae	Arctostaphylos	wellsii			Wells' manzanita
Euphorbiaceae	Chamaesyce	hooveri			Hoover's spurge
Fabaceae	Astragalus	brauntonii			Braunton's milk-vetch
Fabaceae	Astragalus	ertterae			Walker Pass milkvetch
Fabaceae	Astragalus	pycnostachyus	var.	lanosissimus	Ventura marsh milk vetch
Fabaceae	Astragalus	shevockii			Shevock's milk-vetch
Fabaceae	Lupinus	citrinus	var.	citrinus	Orange lupine
Fabaceae	Lupinus	ludovicianus			San Luis Obispo County Lupine
Fabaceae	Lupinus	padre-crowleyi			Father Crowley's lupine
Fabaceae	Trifolium	macilentum	var.	dedeckerae	DeDecker's clover
Fagaceae	Quercus	dumosa			Nuttall's scrub oak
Grossulariaceae	Ribes	tularense			Sequoia gooseberry
Hydrophyllaceae	Phacelia	nashiana			Charlotte's phacelia
Hydrophyllaceae	Phacelia	novenmillensis			Nine-mile canyon phacelia
Iridaceae	Iris	munzii			Munz's iris
Lamiaceae	Monardella	crispa			Crisp monardella
Lamiaceae	Monardella	frutescens			San Luis Obispo monardella
Lamiaceae	Monardella	linoides	ssp.	oblonga	flax-like monardella
Liliaceae	Allium	hickmanii			Hickman's onion
Liliaceae	Allium	howellii	var.	clokeyi	Mt. Pinos onion
Liliaceae	Allium	shevockii			Spanish Needle onion
Liliaceae	Bloomeria	humilis			dwarf goldenstar
Liliaceae	Brodiaea	insignis			Kaweah brodiaea
Liliaceae	Calochortus	clavatus	ssp.	recurvifolius	Arroyo De La Cruz Mariposa Lily
Liliaceae	Calochortus	obispoensis			San Luis mariposa lily
Liliaceae	Calochortus	palmeri	var.	palmeri	Palmer's mariposa lily
Liliaceae	Calochortus	plummerae			Plummer's mariposa lily
Liliaceae	Calochortus	simulans			San Luis Obispo mariposa lily
Liliaceae	Calochortus	striatus			alkali mariposa lily
Liliaceae	Calochortus	weedii	var.	vestus	late-flowered mariposa lily
Liliaceae	Calochortus	westonii			Shirley Meadows star-tulip
Liliaceae	Chlorogalum	pomeridianum	var.	minus	Dwarf soaproot
Liliaceae	Chlorogalum	pomeridianum	var.	reductum	Camatta Canyon amole
Liliaceae	Fritillaria	brandegeei			Greenhorn fritillary
Liliaceae	Fritillaria	ojaiensis			Ojai fritillary
Liliaceae	Fritillaria	striata			striped adobe-lily
Liliaceae	Fritillaria	viridea			San Benito fritillary
Malvaceae	Malacothamnus	davidsonii			Davidson's bush mallow
Malvaceae	Malacothamnus	palmeri	var.	involucratus	Carmel Valley bushmallow
Malvaceae	Sidalcea	hickmanii	ssp.	anomala	Cuesta Pass Checkerbloom
Malvaceae	Sidalcea	keckii			Keck's checkerbloom
Onagraceae	Camissonia	hardhamiae			Hardham's evening primrose

FAMILY	GENUS	SPECIES	SSP/VAR	SUB TAXON NAME	COMMON NAME
Onagraceae	Camissonia	integrifolia			Kern River evening primrose
Onagraceae	Clarkia	australis			Small southern clarkia
Onagraceae	Clarkia	speciosa	ssp.	immaculata	Pismo clarkia
Onagraceae	Clarkia	tembloriensis	ssp.	calientensis	Caliente clarkia
Onagraceae	Clarkia	xantiana	ssp.	parviflora	Kern Canyon clarkia
Papaveraceae	Eschscholzia	lemmonii	ssp.	kernensis	Tejon Poppy
Papaveraceae	Eschscholzia	rhombipetala			diamond-petaled California poppy
Philadelphaceae	Carpenteria	californica			Tree anemone
Pinaceae	Pinus	radiata			Monteret pine
Poaceae	Agrostis	hooveri			Hoover's bent grass
Poaceae	Orcuttia	inaequalis			San Joaquin Valley orcutt grass
Poaceae	Tuctoria	greenei			Greene's tuctoria
Polemoniaceae	Eriastrum	luteum			Yellow-Flowered eriastrum
Polemoniaceae	Leptosiphon	serrulatus			Madera linanthus
Polemoniaceae	Navarretia	nigelliformis	ssp.	radians	shining navarretia
Polemoniaceae	Navarretia	peninsularis			Baja navarretia
Polemoniaceae	Navarretia	setiloba			Piute Mtns. Navaretia
Polygonaceae	Aristocapsa	insignis			Indian Valley spineflower
Polygonaceae	Chorizanthe	breweri			Brewer's spineflower
Polygonaceae	Chorizanthe	pungens	var.	pungens	Monterey spineflower
Polygonaceae	Chorizanthe	rectispina			Straight-awned spineflower
Polygonaceae	Eriogonum	breedlovei	var.	breedlovei	Breedlove's buckwheat
Polygonaceae	Eriogonum	crocatum			Conejo buckwheat
Polygonaceae	Eriogonum	kennedyi	var.	pinicola	Cache Peak buckwheat
Polygonaceae	Eriogonum	nudum	var.	murinum	Mouse Buckwheat
Polygonaceae	Eriogonum	temblorense			Temblor Buckwheat
Portulacaceae	Lewisia	disepala			Yosemite lewisia
Pottiaceae	Tortula	californica			California tortula moss
Ranunculaceae	Delphinium	inopinum			Unexpected larkspur
Ranunculaceae	Delphinium	parryi	ssp.	blochmaniae	Dune larkspur
Ranunculaceae	Delphinium	purpusii			Kern County larkspur
Ranunculaceae	Delphinium	recurvatum			Valley Larkspur
Ranunculaceae	Delphinium	umbraculorum			Umbrella larkspur
Rhamnaceae	Ceanothus	hearstiorum			Hearst's ceanothus
Rhamnaceae	Ceanothus	maritimus			Maritime ceanothus
Rosaceae	Horkelia	cuneata	ssp.	sericea	Kellogg's horkelia
Rosaceae	Horkelia	tularensis			Kern Plateau horkelia
Rubiaceae	Galium	angustifolium	ssp.	onycense	Onyx peak bedstraw
Rubiaceae	Galium	hardhamiae			Hardham's bedstraw
Scrophulariaceae	Castilleja	densiflora	ssp.	obispoensis	Obispo indian paintbrush
Scrophulariaceae	Cordylanthus	maritimus	ssp.	maritimus	salt marsh bird's-beak
Scrophulariaceae	Cordylanthus	mollis	ssp.	hispidus	hispid bird's beak
Scrophulariaceae	Cordylanthus	rigidus	ssp.	littoralis	Sea-side bird's beak

FAMILY	GENUS	SPECIES	SSP/VAR	SUB TAXON NAME	COMMON NAME
Scrophulariaceae	Gratiola	heterosepala			Bogg's lake hedge-hyssop
Scrophulariaceae	Mimulus	gracilipes			slender-stalked monkeyflower
Scrophulariaceae	Mimulus	norrisii			Kaweah monkeyflower
Scrophulariaceae	Mimulus	pictus			Calico monkeyflower
Scrophulariaceae	Mimulus	shevockii			Kelso Creek monkeyflower
Scrophulariaceae	Pedicularis	dudleyi			Dudley's lousewort
Scrophulariaceae	Scrophularia	atrata			Black Flowered figwort

APPENDIX C – Oil & Gas Management Guidelines

Oil and Gas Leasing Availability Categories

The Caliente Resource Management Plan describes the various categories of land availability for leasing for oil and gas. A determination has been made that the lands covered by this EA are open to leasing for oil and gas. In addition, the plan identifies the appropriate stipulations to be associated with each new lease.

Public lands that are closed to leasing separate into two groups. Tracts that have been closed by previous legislation or secretarial policy form one group of lands and are known as non-discretionary closures. The second group of closed lands, consisting of those that would possibly be proposed for closure under this plan, is called proposed discretionary closures.

Lands open to oil and gas leasing separate into the following groups: open to leasing under standard lease terms and conditions; open to leasing under a no surface use stipulation; and open to leasing under a limited surface use stipulation. The standard oil and gas lease form includes those preprinted lease terms and conditions that apply to all leases. Other stipulations developed in this plan are applied in lease areas with special resource concerns, and supersede any inconsistent provisions of the standard lease form. The special stipulations proposed in this plan address limited surface use for areas with resource protection needs slightly different from the standard lease stipulation. The Limited Surface Use (LSU) stipulation provides additional protection for Federally Proposed and Listed Species; Proposed and Designated Critical Threatened and Endangered Species Habitat; and Federal Candidate, State Listed and Bureau Sensitive Species. Three additional special stipulations were contained in the Caliente RMP that are not applicable to any of the land in the subject parcels. Those special stipulations are: No surface use for areas where very unique resources exist, LSU – Department of Defense lands, and LSU – Coast (for management of Coast Area ACEC's/SMA's).

Lands Open to Oil and Gas Leasing

All public land and federally reserved mineral estate within the area covered under this EA are open for oil and gas leasing activities.

The process of nominating a federal parcel for this lease sale was initiated when a letter of interest in oil and gas leasing was submitted to the Sacramento Office of the Bureau of Land Management. The RMP was used to determine the applicability of lease stipulations attached to the parcels in this sale. There are three categories of lease stipulations, described in detail below, and they are:

--Offer for lease with a Standard Lease stipulation
--Offer for lease with a No Surface Use stipulation
--Offer for lease with a Limited Surface Use stipulation

All new leases covered by this EA would be offered with Limited Surface Use Stipulation(s) (LSU). If new leases expire or terminate and the lands are re-leased, they will also be leased with Limited Surface Use Stipulation(s).

Leasing with Standard Lease Stipulation

The Standard Lease stipulation includes the terms and conditions that are the national standards printed on Bureau of Land Management lease forms (Form 3100-11, February 2003).

Under standard terms, a proposed exploration and development operation can be modified by the operator and Bureau to minimize impacts of the project's operation design. Modifications are limited to moving the proposed operation less than 200 meters and delaying the project less than 60 days in one lease year.

No lands covered by this EA are proposed to have this stipulation.

No Surface Use Stipulation

This lease is within an area that contains unique or significant natural or cultural values, or other uses preclude surface development over the entire leased area. To prevent or reduce disturbance to unique or significant natural or cultural values or other pre-existing uses that preclude surface development, No Surface Use is allowed on the lease.

Additional Information

Application. The No Surface Use stipulation is intended for use when adequate protection of surface resources cannot be provided through mitigation, and there are no suitable sites for development anywhere on the **entire** lease. Mineral development of the lease from an off-site location is recommended.

Review Process. If conditions change so that the NSU stipulation becomes necessary for lands to be leased at a future date, the No Surface Use stipulation would be applied at the time of a lease sale. An exception or modification to the stipulation may be approved if it can be demonstrated that operations can be conducted without causing unacceptable impacts to the critical cultural or natural values or to the other pre-existing use. Any decision to grant an exception or modification would be based on field inspection and inventory and the NEPA review process. The lessee should be aware that the timing of the surveys is critical, in that some species can only be surveyed during a brief period each year. The stipulation may be waived if a determination is made by the Bureau that the resource or other use no longer exists on the leased lands.

Although there may be specific discrete areas within the parcels under this EA where No Surface Use is allowed due to pre-existing conditions, there are no leases where the entire surface is precluded from development.

Leasing with the Limited Surface Use Stipulation

Special stipulations may be proposed for use to protect unique resources or values where it may be necessary to modify surface activities beyond authorities contained under the standard lease terms (43 CFR 3103.1-3). The Limited Surface Use Stipulation allows BLM, in consultation with the applicant, to extend modification of development proposals beyond the standard 200 meters and 60-day conditions. By reserving the additional leeway in siting facilities, the BLM and applicant can generally use the combination of increased siting and timing flexibility to modify development proposals to entirely avoid or significantly minimize surface-disturbing effects associated with lease development. The Limited Surface Use stipulation thus allows BLM to offer for lease parcels known to or suspected to contain unique resources or values and resolve any potential conflicts at the time when the lessee is prepared to design development proposals.

This stipulation also advises prospective lessees that they are considering the purchase of a lease in areas known or suspected to contain unique resources or values and advises them of potential constraints and development options available. Historically, the BLM in cooperation with the

lessee has been able to find sufficient flexibility in designing lease development proposals, even in the most sensitive of locations, to facilitate development without adversely affecting either the resource values of concern or the oil and gas lease.

Special conditions that may be attached to new leases issued in the area managed by the Bakersfield Field Office are collectively referred to as the Limited Surface Use stipulation (LSU) and supersede any inconsistent provisions of the standard lease form. The wording of the Limited Surface Use stipulation has been adjusted to address two differing resource concerns (there were six in the Caliente RMP, but four are not currently applicable because the resource values or other pertinent criteria do not exist in the subject parcels). The Limited Surface Use Stipulation would be applied at the lease sale, to parcels located as shown on the RMP map and as described below.

This stipulation has been developed to be utilized over the life of the plan without the need for further plan amendments. The LSU stipulation has been worded to allow for adjusting the geographic locations where they would be applied based on the resource condition at the time of the lease sale offering. The locations identified in this EA address 2007 resource conditions that will be updated and modified on an annual basis. Information on those updates will be available to those interested in potential lease sales.

Limited Surface Use Stipulations

a. Federally Proposed and Listed Species (LSU - Protected Species)

b. Federal Candidate, State Listed and Bureau Sensitive Species (LSU - Sensitive Species)

The following LSU categories from the Caliente RMP are shown for informational purposes only – there are currently no lands in the parcels covered by this EA area subject to these stipulations. However, if a determination is made in the future that one or more of the following stipulations would be appropriate, then the stipulation(s) would be applied according to the criteria in the Caliente RMP.

c. Proposed Critical Habitat and Designated Critical Habitat (LSU - Critical Habitat) N/A for the parcels in this EA

d. Raptor (LSU - Raptor) N/A for the parcels in this EA

e. Department of Defense lands (LSU – Defense) – N/A for the parcels in this EA

f. Coast Management Area (LSU – Coast, for management of Coast Area ACEC's/SMA's) – N/A for the parcels in this EA

Waivers, Modification, Exceptions and Deferral to Other Plans

The Authorized Officer may grant a waiver, modification, or exception to the Limited Surface Use stipulation if the factors leading to the stipulation's inclusion in the lease have changed or if new information has been made available. If the protection provided by the stipulation is no longer necessary or can be adequately mitigated and the proposed operation on a lease would not cause unacceptable impacts, a waiver would be evaluated (see 43 CFR 3101.1-4).

The Authorized Officer may also defer the addition of the Limited Surface Use stipulation referred to under b, c, and d above to requiring compliance with other existing approved plans. Those plans may include Habitat Conservation Plans, Programmatic Consultations, Conservation Agreements or others that provide for adequate protection and conservation of resources and compliance with all Federal and State laws.

As an example, once completed, the Kern County Valley Floor Habitat Conservation Plan and associated BLM Programmatic Section 7 Consultation on oil and gas development activities will

provide adequate protection for resources identified in b, c, and d above for lands within CDOG administrative boundaries and for all federally reserved mineral estate in Kern County. Future lease sales covering parcels in those areas would defer the addition of a Limited Use Stipulation to notation that compliance with the above approved programs or plans is required.

a. Limited Surface Use Stipulation - Federally Proposed and Listed Species (LSU - Protected Species)

All or a portion of this lease is within the range of one or more plant or animal species (a list of species would be included with the stipulation for each lease) that are either listed as threatened or endangered, or are proposed for such listing by the U.S. Fish and Wildlife Service.

The lessee is notified that time frames for processing applications may be delayed beyond established standards to allow for species surveys, and consultation or conferencing with the U.S. Fish and Wildlife Service. Notice is also given that surface-disturbing activities may be moved or modified, and that some activities may be prohibited during seasonal time periods. Surface disturbing activities will be prohibited on the lease only where:

1. the proposed action is likely to jeopardize the continued existence of a listed or proposed species, or

2. the proposed action is inconsistent with the recovery needs of a listed species as identified in an approved U.S. Fish and Wildlife Service Recovery Plan.

Prior to the authorization of any surface disturbing activities, a preliminary environmental review will be conducted to identify the potential presence of habitat for these species. Authorizations may be delayed until completion of the necessary surveys during the appropriate time period for these species. The lessee should be aware that the timing of the surveys is critical, in that some species can only be surveyed during a brief period each year.
The BLM may need to initiate consultation or conference with the U.S. Fish and Wildlife Service if the site inspection concludes that a listed or proposed species may be affected by the proposed activity. The lessee should be aware that the U.S. Fish and Wildlife Service has up to 135 days to render their biological opinion, and that there are provisions for an additional 60 day extension. Offsite habitat protection or enhancement for wildlife or vegetation (compensation) may be required by the U.S. Fish and Wildlife Service when habitat is disturbed. The consultation may also result in some restrictions to the lessee's plan of development, including movement or modification of activities, and seasonal restrictions. Surface disturbing activities will be prohibited on the lease if the consultation or conference concludes that either of the conditions identified in 1. or 2. above exists.

Additional Information

Application. The Limited Surface Use - Federally Proposed and Listed Species (LSU - Protected Species) stipulation would be attached, at the time of lease sale, to leases within the range of certain federally listed or proposed species, or to leases containing, or adjacent to, documented locations of certain federally listed or proposed species. (A list of species would be included with the stipulation for each lease.)

See BLM Biology Tables 4 and 6 for the Federally Proposed and Listed Species in the Bakersfield Field Office.

Documented locations for currently proposed species will be used to determine current applicability of the LSU - Protected Species stipulation for proposed species. If additional species become proposed, or new location information becomes available, the species and parcel lists will be modified and all subsequent lease sales will be evaluated against the modified parcel list.

Review Process. Generally, the following process will be used to approve surface disturbing activities on leases with the LSU - Protected Species stipulation. The proposed activity would be reviewed to determine if listed or proposed species would be affected. This review may involve site-specific surveys for plant and animal species, conducted according to established methodologies that may specify certain seasons or other conditions. In some cases, this may mean that a survey cannot be completed until the next growing season for some plant species or after seasonal appearance for some animal species.

If the review determines that listed or proposed species will not be affected, approval of the application will normally be granted within 30 days of the review.

If the review determines that listed or proposed species may be affected, but in a beneficial, insignificant or benign manner, and written concurrence is received from the U.S. Fish and Wildlife Service, approval of the application will normally be granted within 30 days of receiving U.S. Fish and Wildlife Service concurrence.

If it is determined that a listed or proposed species may be adversely affected, the BLM will work with the applicant to modify the proposal to minimize impacts. Modifications may include movement of activities, seasonal restrictions, mitigation and/or compensation. Modified proposals will be developed cooperatively with the applicant to ensure that the modified project still meets the applicant's objective. If the modified project may still adversely affect a listed or proposed species, BLM will initiate formal consultation or conference with the U.S. Fish and Wildlife Service.

Coordination with the U.S. Fish and Wildlife Service on Listed Species. Currently there are two options for meeting the formal consultation requirement. A new consultation may be initiated or a previously completed formal consultation may be utilized.

If a new consultation is initiated, the U.S. Fish and Wildlife Service will issue a document, called the Biological Opinion. The U.S. Fish and Wildlife Service has up to 135 days to complete a Biological Opinion and they may request an additional 60-day extension. Extensions beyond 195 days require the consent of any applicant.

A previously completed formal consultation may also be used to meet the formal consultation requirement. An example of a previously completed consultation that may be used is the **San Joaquin Valley Oil and Gas Programmatic Biological Opinion.**

Upon completion of a new consultation or determination that a previously completed consultation can be used, approval of the application will normally be granted within 30 days. If the new consultation concludes that a listed species may be jeopardized, then surface disturbance will be prohibited on the lease. Surface disturbance will also be prohibited if the consultation concludes that the proposed action is inconsistent with the recovery needs of the listed species as identified in an approved U.S. Fish and Wildlife Service Recovery Plan.

Coordination with the U.S. Fish and Wildlife Service on Proposed Species. Bureau policy requires a conferencing with the U.S. Fish and Wildlife Service on any action that may adversely affect proposed species. Depending on the complexity of the situation, a conference may be completed in a single telephone conversation or may require the time frames of a consultation. Generally, upon completion of the conference, approval of the application will be granted within 30 days. If the conference concludes that a proposed species may be jeopardized, surface-disturbing activities will be prohibited on the lease.

Final Approval. Final approval of applications that will have no effect on listed or proposed species will normally be granted within 30 days of the review.

Final approval for projects that may affect listed or proposed species in a beneficial, insignificant or benign manner will normally be granted within 30 days of receiving U.S. Fish and Wildlife Service written concurrence. The U.S. Fish and Wildlife Service generally responds to requests for concurrence in 30 days.

For projects that require consultation or conference with the U.S. Fish and Wildlife Service, final approval will normally be granted within 30 days of consultation or conference completion. Conditions of approval will include any conditions specified by the BLM or U.S. Fish and Wildlife Service for minimizing impacts.

b. Limited Surface Use - Federal Candidate, State Listed and Bureau Sensitive Species (LSU - Sensitive Species)

All or a portion of this lease is within the range of one or more plant or animal species (see attached list) that are either Federal candidates for listing as threatened or endangered (Federal Candidate), are listed by the State of California as threatened or endangered (State Listed), or are designated by the Bureau of Land Management as Sensitive (Bureau Sensitive).

The lessee is notified that time frames for processing applications may be delayed beyond established standards to allow for species surveys and coordination with the U.S. Fish and Wildlife Service and California Department of Fish and Game. Notice is also given that surface-disturbing activities may be relocated beyond the standard 200 meters but not more than 1/4 mile and that surface disturbing activities may be prohibited during seasonal time periods.

Prior to the authorization of any surface disturbing activities, a preliminary environmental review will be conducted to identify the potential presence of habitat for these species. Authorizations may be delayed until completion of the necessary surveys during the appropriate time period for these species. The lessee should be aware that the timing of the surveys is critical, in that some species can only be surveyed during a brief period each year.

The Bureau of Land Management may need to coordinate with the U.S. Fish and Wildlife Service or the California Department of Fish and Game if the site inspection concludes that a Federal Candidate, State Listed or Bureau Sensitive species may be affected by the proposed activity. Coordination may delay application processing beyond established time frames.

To prevent or reduce disturbance to Federal Candidate, State Listed or Bureau Sensitive species, surface operations may be moved up to 1/4 mile and surface disturbing activities may be prohibited during seasonal time periods.

Additional Information

The Limited Use - Federal Candidate, State Listed and Bureau Sensitive Species (LSU - Sensitive Species) stipulation would be attached to leases that are either within the range of certain species, or that contain or are adjacent to a documented location of a certain species. A list of species would be included with the stipulation for each lease.

See Biology Tables 4, 5, 7 for the Federal Candidate, State Listed and BLM Sensitive Species within the Bakersfield Field Office.

The current list of parcels or potential geographic area for each species will be maintained in the Bakersfield Field Office. As species are added or removed from special designation, or new location information becomes available, the species list, parcel lists and geographic area lists will be modified. All subsequent lease auctions will be evaluated against the modified species list, parcel list or geographic area list.

Generally the following process will be used to approve surface disturbing activities on leases with the LSU - Sensitive Species stipulation. The proposed activity would be reviewed to

determine if special status species would be affected. This review may involve site-specific surveys for plant and animal species, conducted according to established methodologies that may specify certain seasons or other conditions. In some cases this may mean that a survey cannot be completed until the next growing season for some plants or after seasonal appearance for some animal species.

If the review determines that a special status species may be adversely affected, then surface disturbing activities may be relocated up to 1/4 mile and certain surface disturbing activities may be prohibited during seasonal periods. Bureau policy may also require coordination with the U.S. Fish and Wildlife Service or California Department of Fish and Game.

c. Limited Surface Use Stipulation - Proposed Critical Habitat and Designated Critical Habitat (LSU - Critical Habitat) – Although there is not currently any Proposed or Designated Critical Habitat within the areas that are identified for lease in this sale, should Proposed or Critical Habitat be designated within these lands in the future, the following stipulation would apply:

All or a portion of this lease lies within an area that is designated as critical habitat, or is proposed for designation as critical habitat (see attached species and parcel list) by the U.S. Fish and Wildlife Service.

The lessee is notified that time frames for processing applications may be delayed beyond established standards to allow for species surveys, and consultation or conferencing with the U.S. Fish and Wildlife Service. Notice is also given that surface disturbing activities may be moved or modified and that some activities may be prohibited during seasonal time periods. Surface disturbing activities will be prohibited on the lease only where:

1. the proposed action is likely to destroy or adversely modify critical habitat or proposed critical habitat, or

2. the proposed action is inconsistent with the recovery needs of a listed species as identified in an approved U.S. Fish and Wildlife Service Recovery Plan.

Prior to the authorization of any surface disturbing activities, a preliminary environmental review will be conducted to identify the potential presence of habitat for these species. Authorizations may be delayed until completion of the necessary surveys during the appropriate time period for these species. The lessee should be aware that the timing of the surveys is critical, in that some species can only be surveyed during a brief period each year.

The Bureau of Land Management may need to initiate consultation or conference with the U.S. Fish and Wildlife Service if the site inspection concludes that designated or proposed critical habitat may be affected by the proposed activity. The lessee should be aware that the U.S. Fish and Wildlife Service has up to 135 days to render their biological opinion, and that there are provisions for an additional 60 day extension. Offsite habitat protection or enhancement for wildlife or vegetation (compensation) may be required by the U.S. Fish and Wildlife Service when designated or proposed critical habitat is disturbed. The consultation may also result in some restrictions to the lessee's plan of development, including movement or modification of activities, and seasonal restrictions. Surface disturbing activities will be prohibited on the lease only if the consultation or conference concludes that either of the conditions identified in 1. or 2. above exist.

Additional Information

Application. The Limited Surface Use - Designated and Proposed Critical Habitat (LSU - Critical Habitat) stipulation would be attached to leases within areas that are designated as critical habitat, or proposed for designation as critical habitat for certain species. A list of species and parcels would be included with the stipulation for each lease. Critical habitat is designated or

proposed by the U.S. Fish and Wildlife Service according to the regulations found in 50 CFR 424. Critical habitat means (1) the specific areas within geographical area currently occupied by a species, at the time it is listed in accordance with the Endangered Species Act, on which are found those physical or biological features (i) essential to the conservation of the species and (ii) that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Secretary that such areas are essential for conservation of the species (50 CFR 424.02).

There is currently no designated or proposed critical habitat, or else the constituent elements do not exist, within the parcels covered by this EA. Consequently, no critical habitat would be affected by leasing and developing these parcels and none of the parcels would have this stipulation. If additional areas are designated within these parcels, future permit approvals would be evaluated using those criteria as appropriate

Review Process. Generally, the following process will be used to approve surface disturbing activities on leases with the LSU - Critical Habitat stipulation. The proposed activity would be reviewed to determine if designated or proposed critical habitat would be affected. This review may involve site specific surveys for plant and animal species, conducted according to established methodologies which may specify certain seasons or other conditions. In some cases this may mean that a survey cannot be completed until the next growing season for some plant species or after seasonal appearance for some animal species.

If the review determines that listed or proposed critical habitat will not be affected, approval of the application will normally be granted within 30 days of the review.

If the review determines that listed or proposed critical habitat may be affected, but in a beneficial, insignificant or benign manner, and written concurrence is received from the U.S. Fish and Wildlife Service, approval of the application will normally be granted within 30 days of receiving U.S. Fish and Wildlife Service concurrence.

If it is determined that a listed or proposed critical habitat may be adversely affected, the BLM will work with the applicant to modify the proposal to minimize impacts. Modifications may include movement of activities, seasonal restrictions, mitigation and compensation. Modified proposals will be developed cooperatively with the applicant to ensure that the modified project still meets the applicant's objective. If the modified project may still adversely affect designated or proposed critical habitat, BLM will initiate formal consultation or conference with the U.S. Fish and Wildlife Service.

Coordination with the U.S. Fish and Wildlife Service on Designated Critical Habitat. The BLM is required to initiate formal consultation with the U.S. Fish and Wildlife Service for any action that may adversely affect designated critical habitat. As a result of the consultation, the U.S. Fish and Wildlife Service issues a document, called the Biological Opinion. The U.S. Fish and Wildlife Service has up to 135 days to complete a Biological Opinion and they may request an additional 60 day extension. Extensions beyond 195 days require the consent of any applicant.

As part of the Biological Opinion, the U.S. Fish and Wildlife Service will determine if the proposed action is likely to destroy or adversely modify critical habitat. Destruction or adverse modification of critical habitat means a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical (50 CFR 402.02).

If consultation concludes that critical habitat will be destroyed or adversely modified, then surface disturbance will be prohibited on the affected portion of the lease. Surface disturbance will also be prohibited if the consultation concludes that the proposed action is inconsistent with

the recovery needs of the listed species as identified in an approved U.S. Fish and Wildlife Service Recovery Plan.

Coordination with the U.S. Fish and Wildlife Service on Proposed Critical Habitat. Bureau policy requires conferencing with the U.S. Fish and Wildlife Service on any action that may adversely affect proposed critical habitat. Depending on the complexity of the situation, a conference may be completed in a single telephone conversation or may require the time frames of a consultation. Generally, upon completion of the conference, approval of the application will be granted within 30 days. If the conference concludes that proposed critical habitat will be destroyed or adversely modified, then surface disturbance will be prohibited on the affected portion of the lease.

Final Approval. Final approval of applications that will have no effect on designated or proposed critical habitat will normally be granted within 30 days of the review.

Final approval for projects that may affect designated or proposed critical habitat in a beneficial, insignificant or benign manner will normally be granted within 30 days of receiving U.S. Fish and Wildlife Service written concurrence. The U.S. Fish and Wildlife Service generally responds to requests for concurrence in 30 days.

For projects that require consultation or conference with the U.S. Fish and Wildlife Service, final approval will normally be granted within 30 days of consultation or conference completion. Conditions of approval will include any conditions specified by the BLM or U.S. Fish and Wildlife Service for minimizing impacts.

d. Limited Surface Use - Raptor (LSU - Raptor) – N/A

e. Department of Defense lands (LSU – Defense) – N/A

f. Coast Management Area (LSU – Coast, for management of Coast Area ACEC's/SMA's) – N/A

Standard Engineering Practices

Recognized engineering practices for the routine operation of oil and gas exploration and development are known as Conditions of Approval or COAs. These standard procedures are described in the Federal Onshore Orders and further clarified in the Code of Federal Regulations (CFR 43, October, 2005).

Standard regulations may be supplemented with additional COAs. The additional COAs address sensitive issues within the Area managed by the Bakersfield Field Office. Critical issues underlying the federal regulations and supplemental COAs are the protection of usable aquifers, mineral zones including hydrocarbons, surface environmental issues, site safety and well control, and site reclamation.

Bureau inspection and monitoring of oil field activity on public lands is discussed within the phases of oil and gas development:

Drilling a New Well

Temporary Abandonment of a Producing Well (Idle Well)

Plugging and Abandonment of a Well

Surface Reclamation

No special COAs are normally added for routine producing operations.

Drilling a New Well

After an Application for Permit to Drill (APD) has been received by the Bakersfield Office of the Bureau of Land Management, a review of engineering design as well as potential effects to sensitive resources is undertaken. Special conditions would be noted on the application at this review stage of an oil and gas project by either the operator or the Bureau of Land Management. Modified proposals would be developed cooperatively with the applicant to ensure that the modified project still meets the applicant's objective. Any special conditions would be attached to the APD by the Bureau and the applicant would be informed within seven days of receipt of the APD. In addition to Bureau-wide regulations, the Bakersfield Field Office has developed procedures - these may include but are not limited to:

Steam Injectors. All steam injection wells within a 300' radius of a new location must be shut-in a minimum of 3 days prior to the spudding of a new well.

Conductor Pipe. A minimum of 50' of conductor pipe is to be set and cemented to surface. The conductor pipe must be equivalent to or exceed the properties of A-25 grade line pipe.

Diverter. Prior to spud, a diverter system will be installed on the conductor pipe and function tested. The test will be recorded in the drilling log. The diverter system, at a minimum, will consist of an annular type preventer (minimum working pressure 1000 psi); 2" (minimum ID) kill line, and 6" (minimum ID) diverter line with no internal restrictions or turns. A full opening hydraulically-controlled valve will be installed in the diverter line which will automatically open when the annular preventer is closed. The accumulator system will have sufficient capacity to close the annular preventer and open the hydraulically-controlled valve.

Remote controls for the diverter system will be located on the rig floor and readily accessible to the driller. Remote controls will be capable of closing the annular preventer and opening the hydraulically-controlled valve. Master controls will be located at the accumulator and will be capable of closing and opening the annular preventer and opening the hydraulically-controlled valve. The diverter system will be function-tested daily and the test recorded in the drilling log.

General Casing and Cementing. A Subsequent Report (Form 3160-5) detailing the size, weight, and grade of the casing; the amount and type of cement, including additives; and a copy of the service company's materials ticket and job log will be submitted to the BLM within five (5) business days following the cementing of the casing string. Each casing string (except conductor pipe) will be pressure tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1000 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing. The casing pressure test will be recorded in the drilling log. The wait-on-cement (WOC) time for each casing string will be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

Drilling Fluids. Sufficient quantities of drilling fluid (mud and water) will be maintained at the well site, at all times, for the purpose of controlling steam kicks.

Temporary Abandonment of a Producing Well (Idle Well)

Economic conditions often depress the California market for the typical heavy oil produced in the area managed by the Bakersfield Field Office. When the producing market is depressed, an operator may decide to shut-in his uneconomic, producing wells and wait for conditions to improve. The highly viscous nature of most Kern County crude oil, typical low well head pressures, and the relatively low corrosive properties of the fluids (low sulfur crude) make the known dangers of shutting in a well for long periods and then bringing it back on-line less of a mechanical problem here in this Field Office Area than in other producing regions of the country. As a result, by 1990, a large number of wells were remaining idle for longer and longer periods.

Monitoring and correction of the problem have been successfully undertaken by the California Division of Oil, Gas, and Geothermal Resources and the local BLM Field Office. The following additional conditions *may* be required as applicable prior to the temporary abandonment (TA) of a producing oil/gas well, service well, or an injection well.

Zone Isolation. The requirement to isolate the producing interval (General Requirement #4) is waived. This waiver is based on the information submitted with the application and the geologic data in Volume # 1 California Oil and Gas Fields, Central California, (Buena Vista Oil field) which indicates the absence of usable water aquifers above the producing horizon in (section in which well is located).

Mechanical Integrity of Casing. The mechanical integrity of the casing may be determined using the ADA pressure test method.

Fluid Surveys. A fluid level survey will be performed at 2-5 year intervals during the period the well is temporarily abandoned. A copy of the survey will be submitted to the BLM with the TA well request (sundry notice form 3160-5).

Monitoring of Wellhead Pressures and Temperatures. Wellhead pressure and temperature will be continuously monitored throughout the period the well is temporarily abandoned. Any pressure/temperature change will be promptly reported to the BLM.

Isolation of the Producing Interval. The producing interval will be isolated by setting a plug in the casing within 100' above the producing interval if a rising fluid level, an increasing wellhead pressure, or an increasing wellhead temperature is detected. The plug can be either a retrievable or drillable-type bridge plug or a cement plug of at least 100' in length.

Plugging and Abandonment of a Well

No additional conditions are typically attached to the abandonment of a well in California. Onshore Orders describe the plugging procedure. While final abandonment will normally be witnessed by the BLM, no final site marker is currently required by the Bakersfield field office.

Surface Reclamation

Conditions for the recovery of an oil well site are unique to each area's ecosystem and habitat. The following examples of Conditions of Approval have been developed for use within the Area managed by the Bakersfield Field Office. The applicability of any or all of these COAs will be determined based on site-specific conditions.

General. The operator (or holder) will prepare a seedbed by: a) scarifying the disturbed area, (b) distributing topsoil uniformly, or c) disking the topsoil, as directed by the BLM Authorized Officer (use one as appropriate).

The operator will recontour the disturbed area and obliterate all earthwork by removing embankments, backfilling excavations, and grading to re-establish the approximate original contours of the land in the area of operation.

The operator will uniformly spread topsoil over all unoccupied disturbed area (outside the ditch line, fence line, and work area). Spreading will not be done when the ground or topsoil is frozen or wet.

The operator will seed all disturbed area, using an agreed upon method suitable for the location. Seeding will be repeated if a satisfactory stand is not obtained as determined by the BLM Authorized Officer upon evaluation after the first growing season.

The operator will arrange to have a biologist available to assist the construction workers in the identification and avoidance of endangered species.

Producing Wells. Site reclamation for producing wells will be accomplished for portions of the site not required for continued operation of the well. The following measures are typical reclamation requirements, and any or all of these may be required on a site by site basis:

Reclamation of drilling fluid pit (mud pit). Polluting substances, contaminated materials moved offsite or buried.

Site fencing.
Berm removal and site grading.
Cut and fill slope vegetation.

Non-producing Wells. Rehabilitation on the entire site will be required and will commence as soon as practical, dependent upon prevailing weather conditions. Cut and fill slopes will be reduced and graded to blend to the adjacent terrain.

Drilling fluids held within pits may be allowed to dry. Fluids that will not dry must be removed. All polluting substances or contaminated materials such as oil, oil-saturated soils, and gravels will be buried with a minimum of 2 feet of clean soil as cover, or be removed to an approved site.

Drainages will be re-established and temporary measures will be required to prevent erosion to the site until vegetation is established.

After final grading and before replacement of topsoil, the entire surface of the site will be scarified to eliminate slippage surfaces and to promote root penetration. Topsoil will then be spread over the site to achieve an approximate uniform, stable thickness consistent with the established contours.

Permanent Well Abandonment. The surface management agency is responsible for establishing and approving methods for surface rehabilitation and determining when this rehabilitation has been satisfactorily accomplished. At this point, a Subsequent (Final) Report of Abandonment will be approved.