# 2. Alternatives

## 2.1 Introduction

Chapter 2 describes the five alternatives evaluated in detail in the Central Coast Oil and Gas Leasing and Development Resource Management Plan Amendment (RMPA)/Environmental Impact Statement (EIS), which includes the No Action Alternative (Alternative A) and four action alternatives (Alternatives B, C, D, and E). Section 2.2 explains how the alternatives were developed. Sections 2.3 and 2.4 describe the Reasonably Foreseeable Development (RFD) Scenario as well as management goals, objectives and actions common to all alternatives. The five alternatives are described in Sections 2.5 through 2.10 and are depicted on figures provided in Appendix A. Section 2.11 presents a detailed comparison of the five alternatives. Finally, the alternatives that were considered but eliminated from detailed analysis are described in Section 2.12. Alternatives were eliminated if they did not meet the purpose and need for the Draft RMPA/EIS, were covered under alternatives analyzed in this RMPA/EIS, or if they were not feasible due to technical, legal, or policy considerations.

In this EIS, the BLM has developed and assessed reasonable alternatives that meet the purpose and need identified in Chapter 1. During this process, the BLM explored and objectively evaluated reasonable alternatives, and according to 40 CFR Part 1502.14(a), explained why certain alternatives were eliminated from detailed study. It is the BLM's position that the alternatives presented use sound and prudent judgment and are feasible from a technical and economic standpoint. In addition to the action alternatives, 40 CFR Part 1502.14(d) directs Federal agencies to include a No Action Alternative. The No Action Alternative is the only alternative that does not need to respond to the purpose and need for the action. Alternatives are not management decisions; alternatives represent a reasonable approach to manage resources and resource uses. The action alternatives presented in this EIS reflect a range of development and management use, and resource protections. The alternatives are responsive to issues identified during the scoping period to meet established planning criteria (outlined in Chapter 1) and provide resource management goals and objectives. All alternatives are intended to minimize adverse impacts on physical, biological, and socioeconomic resources from oil and gas development while providing for a level of resource use and development consistent with current laws, regulations, and BLM policies.

Analysis of each alternative has been reviewed and has guided the BLM in selecting Alternative C as the Preferred Alternative (40 CFR Part 1502.14 (e)). This is not a final agency decision, but instead an indication of the agency's preliminary preference. As part of the planning process, the public is invited to comment on this Draft RMPA/EIS. The Proposed RMP may reflect changes or adjustments based on information received during public comment, new information, or changes in BLM policies or priorities. The Proposed RMP may include objectives and actions described in the other analyzed alternatives. For this reason, BLM invites and encourages comments on all alternatives, objectives, and actions described in this Draft RMP/Draft EIS. When commenting on this draft document, the reader may choose to address entire alternatives only or various elements of any of the alternatives. The BLM will consider all substantive comments received, and prepare a Proposed RMPA and Final EIS, followed by the Approved RMPA and Record of Decision (ROD). The ROD will contain the decisions that will guide future management of energy and minerals administered by the Central Coast Field Office (CCFO).

Acreages presented for each alternative have been calculated using BLM Geographic Information System (GIS) data; the results may differ from the 2007 RFD Scenario due to advancement of GIS technology, refinement in the precision of the mapping of various datasets over time, variations in the selection of data sets utilized for calculations, and refinement of the oil and gas occurrence potential in the CCFO Planning Area. Mineral estate lands managed by BLM are also subject to change due to acquisitions and/or disposal and data refinement and maintenance. Total calculated acres do not represent site specific areas and are for generalized planning purposes only.

## 2.2 Alternatives Development

The BLM used several sources of input to develop alternatives, including existing decisions in the 2007 Hollister Field Office RMP and the 2015 RFD Scenario. The public scoping process, conducted from August 5, 2013, to February 28, 2014, provided an opportunity for interested members of the public, local governments, and other resource and land management agencies to comment on the planning process and/or management concerns for oil and gas resources. From the comments received, the BLM identified the key planning issues to be addressed in the Draft RMPA/EIS and incorporated them into the range of alternatives. BLM also held a Social and Economic Workshop on February 4, 2015, to solicit input on the effects Federal mineral leasing and development may have on local economic and social goals in the CCFO Planning Area, which was documented in a Social and Economic Workshop Summary Report (Appendix F).

## 2.3 Reasonably Foreseeable Development Scenario

In 2015, the BLM prepared an updated RFD Scenario to project the levels and types of industry activity and the associated surface disturbance that are likely to occur on all mineral estate managed by the BLM in the CCFO Planning Area (see Appendix B). The 2015 RFD Scenario is based on known or inferred oil and gas occurrence potential based on California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) records, independent assessments of scientific literature, and knowledge of local experts with experience in the leasing and development of Federal minerals. The lands included are limited to those with BLM-administered mineral estate, including split estate where the surface is owned by an entity or person other than the BLM but the Federal subsurface mineral estate is managed by the BLM. The 2015 RFD is a planning tool to help the BLM project the reasonably foreseeable impacts of oil and gas development within the Planning Area. It does not, in and of itself, represent a decision to authorize oil and gas development, nor is it a goal or target for oil and gas development in the Planning Area. Therefore, it is used to analyze the impacts of all alternatives, including the No Action Alternative.

An RFD is used to project management activities and actions which are likely to occur in the planning area over the life of the plan assuming all potentially productive areas are open under standard lease terms and conditions. (BLM Handbook, H-1624-1 Planning for Fluid Mineral Resources, Chp. III.; Instruction Memorandum No. 2004-089 "Policy for Reasonable Foreseeable Development (RFD) Scenario for Oil and Gas," January 16, 2004.) Existing fluid minerals practices, including well stimulation techniques and enhanced recovery methods, and information on existing leases and related exploration and development activities as well as the potential for development in the planning area provides the basis for projecting the RFD. The RFD should address areas with similar exploration and development potential, the number, density and type of wells likely to be drilled within these areas, and the estimated percent of activity that is likely to occur on land managed by the BLM. Projections should be based on past and present leasing, exploration, and development activity as well as professional judgment on geological and related technological and economic factors. Extrapolation of historical drilling and/or production activity may be used as the basis for projections. The location of reserves, including those in existing fields/pools that may be developed by secondary or other enhanced recovery methods should also be taken into consideration. In frontier areas this analysis may not be possible due to lack of drilling or production data. Once an RFD is completed, the agency is in a position to analyze the potential direct, indirect and cumulative impacts assuming continuation of existing management practices. An RFD is not a planning decision nor the No Action Alternative. "Reasonably foreseeable development" does not include scenarios that are merely speculative or only have a remote possibility of occurring.

In response to the Hollister litigation the BLM has specifically identified the potential use of enhanced production and well stimulation techniques in re-addressing the RFD for the Central Coast RMP. The 2015 RFD Scenario considers oil and gas technologies, including well stimulation, enhanced oil recovery

techniques, and recent oil and gas development trends in California. Based on further analysis of the geology of the area and updated information, the 2015 RFD Scenario also modifies the areas of oil and gas occurrence potential that were identified in the RFD Scenario for the 2007 Hollister Field Office RMP (BLM, 2007; Appendix F).

Overall, the 2015 RFD Scenario assumes that the current development trends in this region are likely to continue for the next 15 to 20 years. Fewer than one percent of the wells counted in the CCFO Planning Area occur outside of existing administrative oil and gas field boundaries.[1] The RFD estimates that during the life of this plan, between zero and 32 development wells could be expected on Federal mineral estate within existing fields[2] in the CCFO Decision Area and three to five exploratory wildcat wells[3] (wells outside of the administrative boundary of existing oil and gas fields) would be drilled on Federal mineral estate in the CCFO Decision Area. Therefore, given the limited extent of area of Federal mineral estate within the entire Planning Area (approximately 793,000 acres of Federal mineral estate out of 6.8 million acres in the Planning Area), it is unlikely that more than a total of 37 exploratory and development wells will be drilled on new Federal oil and gas leases over the next 15 to 20 years. Well stimulation technologies and enhanced oil recovery techniques are assumed to be used on any or all of these wells (Appendix B); however, since 2002, only 2.5 percent of the wells within the CCFO Planning Area boundaries have record of being hydraulically fractured. While the large majority or even all of this activity is expected to occur in areas identified in this RFD Scenario as "high oil and gas occurrence potential," there is always a possibility that Federal minerals in other areas may see geophysical exploration, leasing, and even actual exploration and development drilling. It is highly unlikely, although not impossible, that any wells in such an area would be productive, so any associated surface disturbance would likely be short-term. The total surface disturbance caused by all seismic operations, exploration drilling, and well development on Federal mineral estate would be up to approximately 206 acres (see Appendix B, sec. 5). For the purposes of this RMPA/EIS, all mineral estate managed by the BLM is considered covered by the 2015 RFD Scenario, even if not currently mapped. Mineral estate on lands that may be acquired in the future is also to be covered by the 2015 RFD Scenario, so long as the values and resources that are contained on the newly acquired lands do not differ significantly from other Federal mineral estate nearby.

## 2.4 Management Common to All Alternatives

The alternatives described in this chapter represent a range of management options to address the scoping issues (presented in Section 1.3) and to achieve resource management goals in light of the updated oil and gas RFD Scenario in the CCFO Planning Area, which includes updated information based on oil and gas drilling technologies, including well stimulation, and recent oil and gas development trends in California. This section discusses the management goals, objectives, and actions that would apply to CCFO management of oil and gas resources under all alternatives, as well as Best Management Practices (BMPs) and BLM's final rule on hydraulic fracturing (BLM, 2015a). The specific goals, objectives and management

[1] An oil and gas field is a geographical area under which an oil or gas reservoir lies. Oil and gas field boundaries are defined by the California Division of Oil, Gas and Geothermal Resources (DOGGR). Administrative field boundaries are drawn on section or quarter-section lines and incorporate all producing wells within a field.

[2] The RFD assumes that the federal share of development is likely to remain roughly proportional to the federal share of mineral estate in the four most-active fields (1 percent).

[3] The past trend indicating only one percent of wells are outside administrative field boundaries implies that roughly 32 exploratory wells would be drilled on lands within the CCFO Planning Area. Given that 11.6 percent of land in the planning area is federal mineral estate, 3 to 5 exploratory wildcat wells would be drilled on Federal mineral estate in the CCFO Planning Area during the life of this plan.

actions that would apply to CCFO management of oil and gas resources under each individual alternative are listed in Sections 2.6 through 2.10.

All areas currently closed to leasing under the 2007 Hollister Field Office RMP would remain closed under all alternatives.

### 2.4.1 Management Goals and Objectives

Management goals are typically focused on maintaining, improving, and enhancing existing resource conditions, avoiding adverse impacts, and complying with applicable State and Federal standards and regulations. Establishing management goals aids the BLM in developing management objectives, allowable uses, and management actions. Management goals are broad statements of desired outcome, but are generally not measurable. Objectives are anticipated to achieve the stated management goals. Management objectives provide a guideline for developing management actions. Objectives are usually quantifiable and measureable, and may have established timeframes for achievement.

The 2007 HFO RMP defined management goals and objectives for each resource and resource use category that the BLM must address in the planning process (BLM, 2007). These management goals and objectives have been incorporated as applicable and updated to apply to this oil and gas leasing under this RMPA/EIS as follow.

The goal for energy and mineral resource management is to allow development of energy and mineral resources to meet the demand for energy and mineral production while protecting natural and cultural resources in the area.

To achieve this goal, the following objectives related to oil and gas leasing and development would be established:

- Balance responsible mineral resource development with the protection of other resource values;
- Provide opportunities for mineral exploration and development under the mining and mineral leasing laws; and
- Provide mineral materials needed for community and economic purposes.

### 2.4.2 Management Actions

Management actions are intended to achieve desired outcomes. These actions include proactive measures or limitations intended to guide day-to-day activities occurring on public land. For this EIS, public land includes land managed by the BLM and Federal mineral estate land. BLM management actions for energy and minerals that are common to all alternatives are listed below. Sections 2.6 through 2.10 list management actions that would be implemented for each action alternative.

In order to manage oil and gas leasing and development within the CCFO Planning Area, the BLM established the following management actions in the 2007 RMP:

- **ENERG-COM1.** As outlined in the Interim Management Policy for Lands Under Wilderness Review (BLM, 2012) and the Wilderness Act of 1964, WSAs and Wilderness Areas would be closed to mineral leasing and sales and to locatable mineral activities that require reclamation or degrade wilderness values.
- **ENERG-COM4.** Make all BLM public lands, unless withdrawn or otherwise noted, available for energy and mineral development subject to BLM's Fluid Minerals BMPs.
- **ENERG-COM5.** Consider energy and minerals exploration, development, and production within environmental and multiple-use management constraints.

- **ENERG-C4.** Leases would be subject to standard stipulations and mitigation measures for special status species (BLM, 2007; Appendix D).

As part of establishing the Fort Ord National Monument in 2012, the presidential proclamation withdrew Fort Ord from mineral entry. As such, the following new management action common to all alternatives would also be established in addition to those established in the 2007 RMP:

- **ENERG-A1.** Fort Ord National Monument would be closed to mineral leasing.

### 2.4.3 Best Management Practices

Best Management Practices (BMPs) are measures applied to oil and natural gas drilling and production to help ensure that energy development is conducted in an environmentally responsible manner. BLM issued a BMP policy on June 22, 2004. The policy instructs field offices to incorporate appropriate BMPs into Applications for Permit to Drill as Conditions of Approval and associated on- and off-lease rights-of-way approvals. BMPs are dynamic, evolving through new understanding and developments in science and technology. They are selected and implemented as necessary, based on site-specific conditions, to meet resource objectives for specific management actions. New information and improving technologies will likely lead to the development of new or revised measures over time. Some BMPs are as simple as choosing a paint color that helps oil and gas equipment blend in with the natural surroundings, while others involve cutting-edge monitoring and production technologies. All are based on the idea that the "footprint" of energy development should be as small and as light as possible (BLM, 2015b). For all alternatives, the BLM would apply and use BMPs (see Appendix D), as needed in specific situations, to ensure adequate protection of resource values. "BMPs are voluntary unless they have been analyzed as a mitigation measure in the environmental review for a Master Development Plan, Application for Permit to Drill (APD), Right-of-Way, or other related facility and included as a Condition of Approval" (43 CFR 3164.1, Onshore Oil and Gas Order No. 1, Approval of Operations [2007]).

By reducing the area of disturbance, adjusting the location of facilities, and using numerous other techniques to minimize environmental effects, BMPs reduce impacts associated with new energy development to wildlife habitat, scenic quality, water quality, recreation opportunities, and other resources. The actual practices and mitigation measures best for a particular site are evaluated through the NEPA process in this EIS and vary to accommodate unique, site-specific conditions and local resource conditions.

BMPs could be applied as a Condition of Approval (COA) at the time of permitting of oil and gas drilling or related operations or other activities and could include a variety of measures to minimize impacts over the short- or long-term, including timing limitations or avoidance areas for land use authorizations.

### 2.4.4 BLM Final Rule on Hydraulic Fracturing on Federal and Indian Lands

In March 2015, the BLM issued a final rule regarding hydraulic fracturing on Federal and Indian lands.[4] The BLM's hydraulic fracturing rule is intended to reduce risks to resources and the environment.[5] The

[4] That hydraulic fracturing rule has been set aside by the U.S. District Court in Wyoming, and thus the BLM is not implementing it. As explained below, the BLM has appealed that ruling. This footnote applies to all references to BLM's final rule regarding hydraulic fracturing throughout the entire Draft EIS.

[5] A recent draft report by the US EPA compared the number of verified adverse incidents involving hydraulic fracturing operations with the total number of the operations. "Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources," (EPA External Review Draft June 5, 2015, available at http://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=244651). It concluded that hydraulic fracturing does not present a widespread systematic risk to drinking water resources. But the threat to resources and the environment is greater than zero; the EPA documented several adverse incidents in several different states outside of California.

standards included in the rule update the requirements for well-bore integrity, wastewater disposal, and public disclosure of chemicals, with prior approval of hydraulic fracturing operations. The new final rule would fill gaps in the existing BLM requirements for hydraulic fracturing operations on Federal and Indian lands, by requiring prior BLM approval for all hydraulic fracturing operations, verification and testing of cement and casing strength, submission of information about the chemicals used in hydraulic fracturing operations, requirements for safe temporary storage of recovered fluids, and information to help prevent unplanned surges of pressurized fluids into other wells ("frack hits"). The rule also includes a process to allow states and tribes to request a variance from provisions for which there is an equal or more protective regulation in place, and allows operators to apply for a site specific variance that would meet or exceed the requirements of the rule.

However, on June 21, 2016, the United States District Court for the District of Wyoming (Case No. 2:15-CV-043-SWS) set aside the March 2015 final rule.[6] The BLM subsequently appealed the District Court's decision to the 10th Circuit Court of Appeals (No. 16-8068). This rule is referenced throughout this Draft RMPA/Draft EIS and the assumption was that the rule would be in effect. However, the BLM, including the Central Coast Field Office, is not implementing this hydraulic fracturing rule while it continues to be subject to legal challenge. The outcome of the court action could be that the rule is (1) upheld in entirety, (2) overturned in entirety, or (3) upheld in part while other parts are overturned. If the final judgment of the Federal courts overturns any of the specific provisions of the BLM's hydraulic fracturing rule that specific provision would not be implemented by the BLM. Chapter 4 (Environmental Consequences) distinguishes potential impacts with and without implementation of the BLM's rule.

On public lands, including those covered by the RMPA, oil and gas operators must comply with both Federal and State statutes and regulations to the extent that State regulations do not contradict Federal law or interfere with Federal lease rights. In California, the relevant State law includes hydraulic fracturing regulations promulgated under California's Senate Bill 4 (SB 4).[7] As discussed below, SB 4 provides for reductions in the risks present with hydraulic fracturing operations. SB 4 addresses well stimulation requirements, including hydraulic fracturing requirements, as does the Federal hydraulic fracturing rule (See Table 2-1). In addition, all action alternatives include a protection of water stipulation, Controlled Surface Use – Well Stimulation Technologies.

BLM's Instruction Memorandum (IM) No. CA-2014-031 supplements existing BLM policy and guidance regarding APDs and Sundry Notices (SNs) in California. That IM provides an opportunity for BLM California to coordinate data requirements with those of the State of California with respect to well stimulation techniques, including hydraulic fracturing, that it regulates pursuant to SB 4. According to the IM, before an operator may conduct well stimulation activities on Federal mineral estate, a copy of the State permit application and groundwater monitoring plan (if applicable) required by SB 4 is to be submitted to the BLM along with the APD or SN. The operator should also follow up with copies of the final State-approved permits that show any modifications to the original application. The information contained in the application and the final State-approved permit will be used to inform the BLM's NEPA analysis regarding the effects of well stimulation. This information is comparable, in part, to some of the pre-operation information requirements under the BLM's hydraulic fracturing rule, which will also inform BLM's NEPA analysis. BLM's NEPA analysis will provide the basis for modification or application of conditions of approval regarding the proposed operation. Likewise, the BLM California's protection of water stipulation affords mitigation measures for surface and groundwaters that complement

[6] A separate challenge to the BLM's hydraulic fracturing rule in the U.S. District Court for Colorado has been administratively closed while the parties negotiate.

[7] The final regulations promulgated under SB 4 amend sections of California Code of Regulations Title 14, Division 2, Chapter 4, Subchapter 2.

the requirements in IM CA-2014-031. The stipulation provides that in areas where well stimulation is probable, APDs will not be approved until the BLM receives sufficient information on proposed or anticipated site-specific well stimulation activities and an associated plan to monitor and mitigate for impacts to ground and surface water resources. These requirements may be satisfied by providing the BLM information required by SB 4.

BLM California's 2012 Memorandum of Understanding with the California Department of Conservation encourages and facilitates sharing information and combining resources where possible. BLM California and the State of California have agreed to cooperatively implement oil and gas field regulations on Federal mineral estate.

To compare and contrast the BLM's hydraulic fracturing rule with SB 4, a summary of each is provided in Table 2-1.

**Table 2-1. Comparison of BLM's Hydraulic Fracturing Rule and Senate Bill 4**

| Subject | BLM Hydraulic Fracturing Rule | California SB 4 Regulations |
|---|---|---|
| Covered operations | Rules only apply to hydraulic fracturing. | Rules apply to hydraulic fracturing and any other well stimulation treatment designed to enhance the permeability of the formation. Data collected regarding all uses of acid and significant pressures applied to the well. |
| Permit application requirements | Information must be provided regarding the treatment design, the surrounding geology, known faults in the area of the treatment, and other wells in the area of the treatment. Application must demonstrate that all usable water and other mineral-bearing formations will be isolated and protected from contamination. | Information must be provided regarding the treatment design, the surrounding geology, known faults in the area of the treatment, and other wells in the area of the treatment. Application must demonstrate that there will be geologic and hydrologic isolation of the oil and gas formation during and following treatment. |
| Permit grouping | Procedures exist for submitting permits in batches, but each individual permit is still subject to equal scrutiny. | Procedures exist for submitting permits in batches, but each individual permit is still subject to equal scrutiny. |
| Neighbor notification | None required. | The operator must notify neighboring surface property owners and provide them with a copy of the approved treatment permit at least 30 days before treatment is commenced. At the property owner's request, the operator must pay for testing of water wells or surface water before and after treatment. |
| Groundwater monitoring | None required. | Groundwater monitoring must be done on a well-specific, field-wide, or regional basis. Groundwater monitoring plans are subject to review and approval by the State Water Resources Control Board. |
| Pressure testing of well prior to treatment | The well must be pressure tested to at least 100% of the maximum surface pressure anticipated during treatment. Pressure must hold for at least 30 minutes with no more than 10% pressure loss. | The well must be pressure tested to at least 100% of the maximum surface pressure anticipated during treatment. Pressure must hold for at least 30 minutes with no more than 10% pressure change. The Division must be provided opportunity to witness pressure testing. |

**Table 2-1. Comparison of BLM's Hydraulic Fracturing Rule and Senate Bill 4**

| Subject | BLM Hydraulic Fracturing Rule | California SB 4 Regulations |
|---|---|---|
| Pressure testing of surface equipment prior to treatment | None required. | Surface equipment must be pressure tested at a pressure equal to 125% of the maximum surface pressure anticipated during treatment, but not greater than the manufacturer's pressure rating for the equipment being tested. |
| Cement evaluation | Cement evaluation must be done to demonstrate that cement will ensure isolation and protection of usable water. | Cement evaluation must be done to demonstrate that cement will ensure the geologic and hydrologic isolation of the oil and gas formation during and after treatment. |
| Monitoring during treatment | Pressures must be monitored and recorded during treatment. If pressure increases by more than 500 pounds per square inch, then treatment must stop and immediate action must be taken. | Pressures must be monitored and recorded during treatment. If pressure changes by more than 20% or exceeds 90% of the casing yield rating, then treatment must stop and immediate action must be taken. |
| Monitoring after treatment | None required. | Production pressure and annular pressure must be periodically monitored for indication of well breach for the life of the well. |
| Prevention of "Frack Hits" | Map showing suspected faults or fractures within 0.5 miles of wellbore. | A review of all geologic features, including known faults (active or inactive), within five times the axial dimensional stimulation area. |
| Monitoring for seismic activity | None required. | The operator must monitor the California Integrated Seismic Network for ten days after the end of hydraulic fracturing. If there is an earthquake of magnitude 2.7 or greater in the area of treatment then treatment operations must halt while evaluation is done. |
| Management of recovered fluids | Recovered fluids must be stored in enclosed, above-ground tanks and cannot be stored in sumps or pits, with very limited exception. | Recovered fluids must be stored in containers[1] and cannot be stored in sumps or pits. |
| Public disclosure | Within 30 days after treatment, the operator must publicly disclose detailed information about the treatment, including the identity and maximum concentration of the additives and ingredients in the fluids used. | Within 60 days after treatment, the operator must publicly disclose detailed information about the treatment, including the identity and maximum concentration of the additives and ingredients in the fluids used. |
| Trade secret claims | Public Disclosure on FracFocus.org is required. Exemptions may be granted to protect trade secret information, but must still be provided to BLM. | Trade secret information must be publicly disclosed, with very limited exception. |
| Water Supply Information | Source, location, access route and transportation method for water supply must be provided to BLM. | Source and location of water supply is required as part of a water management plan and as part of post-treatment public disclosures. |

1 - California's regulations do not specifically include a requirement for containers to be enclosed.

While the BLM's hydraulic fracturing rule is set aside, the following provisions of the rule will not be in effect for Federal wells in California because SB 4 does not expressly regulate the activities as stringently as would the BLM's rule:

- The requirement for all recovered fluids to be stored in enclosed, above-ground tanks.
- The requirement to map suspected faults or fractures within 0.5 miles of the wellbore. SB 4's requirement of mapping of known faults within five times the axial dimensional stimulation area (the maximum length, width, height, and azimuth of the area(s) stimulated) varies by engineering design and may not always cover the 0.5 miles mapping from the wellbore required under BLM's rule.
- The requirement of supplying BLM with information on the access route and transportation method for the water supply.

SB 4 and the hydraulic fracturing rule, while not exactly the same, have some similar requirements with respect to hydraulic fracturing. The analysis in this EIS with regard to impacts of hydraulic fracturing on geology, hazardous materials and public safety, groundwater, and surface water resources and mitigation of effects on these resources is likewise similar under both SB 4 and the BLM's hydraulic fracturing rule. See below for specific examples of impacts and mitigation under each set of regulations.

Discussion of these policies and regulations as they relate to impacts to specific resources from hydraulic fracturing can be found on the following, and other, pages in this Draft RMPA/Draft EIS as indicated in Table 2-2 below.

**Table 2-2. BLM's Hydraulic Fracturing Rule and Senate Bill 4 Discussion Index (page numbers)**

| | | Regulations | |
|---|---|---|---|
| **Resource** | **Impacts** | **BLM's Hydraulic Fracturing Rule** | **SB 4** |
| Geology | 4.3-1 – 4.3-2 | 3.3-1 – 3.3-2 | 3.3-4, 4.3-2 |
| Hazardous Materials & Public Safety | 4.4-5 – 4.4-17 | 3.4-7, 4.4-11 – 4.4-14, 4.4-19, 4.4-20 | 3.4-11, 4.4-11 – 4.4-14, 4.4-19, 4.4-20 |
| Groundwater | 4.7-2 – 4.7-10 | 3.7-1 – 3.7-3, 4.7-2, 4.7-6 – 4.7-9 | 3.7-3 – 3.7-4, 3.7-9, 4.7-6 – 4.7-9 |
| Surface Water | 4.8-2 – 4.8-8 | 3.8-2, 4.8-2, 4.8-4 – 4.8-6, 4.8-8 | 3.8-4, 4.8-5 – 4.8-6, 4.8-8 |

The potential impacts of oil and gas development, including from hydraulic fracturing, are included in this EIS. This EIS analyzes those impacts at a programmatic scale. However, it is important to note that the effect of any particular well or field development would depend on the impact posed by site-specific engineering and operations within specific geology and upon the area's other characteristics (such as nearby wellbores). The BLM will analyze these site-specific impacts during the NEPA review for a lease or an individual well.

In summary, the requirements expressed in the policies and regulations discussed above are in several respects comparable to each other. SB 4, the BLM's hydraulic fracturing rule, and the BLM California water stipulation have been incorporated into the analysis of effects and mitigation measures in Chapter 4 of this EIS.

## 2.5 Overview of the Draft RMPA Alternatives

### 2.5.1 Allowable Uses

The five alternatives are distinguished by the type and degree of constraints described as allowable uses undertaken to achieve the desired outcomes. Allowable uses identify surface lands and Federal subsurface oil and gas mineral estate where uses are allowed. Allowable uses include any protective measures or restrictions that would be needed to meet desired outcomes, and could exclude certain land uses to protect resource values. For example, protective measures could be imposed on the location of access roads, well sites, and facility sites or on the timing of geophysical exploration, well drilling, or other operations,

consistent with the mineral rights granted by the lease. Allowable uses could result from lease stipulations (e.g., lands open to leasing with a no surface occupancy [NSO] stipulation), COAs from the surface management agency's review and environmental analysis of the proposed operations, Notices to Lessees, Onshore Orders, or regulations.

An explanation of the general types of lease stipulations is included below. The lease stipulations specific to each alternative in this RMPA/EIS are described in Sections 2.6 through 2.10 and listed in Appendix C of this RMPA/EIS. Lease stipulations apply to both Federal and split estate leases.

### Lease Stipulations

Lease stipulations are necessary "if upon weighing the relative resource values, there are values, uses, and/or users identified that conflict with oil and gas operations and cannot be adequately managed and/or accommodated on other lands" (U.S. Government, 1989). BLM policy is to apply the least restrictive stipulation necessary to adequately protect the identified resource value(s). There are three general types of stipulations that may be applied to a lease (BLM, 2013; U.S. Government, 1989):

- **Controlled Surface Use (CSU):** Use and occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operation constraints that may modify the lease rights.

  *Example*: No permanent facilities or structures within 2 miles of a raptor nest.

- **Timing Limitation (TL) (Seasonal Restriction):** Prohibits surface use during specified time periods to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

  *Example*: In habitat for raptor species, no surface disturbances would be conducted during the breeding and nesting season (March 1 to August 31 for burrowing owl and March 1 to August 1 for ferruginous hawk) within spatial buffers (0.25 miles for burrowing owl and 0.5 miles for ferruginous hawk) of known nesting sites.

- **No Surface Occupancy (NSO):** Use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect identified resource values.

  In order for lands to be leased subject to a NSO stipulation, there must be potential for the minerals under the NSO lands to be developed from nearby lands by directionally or horizontally drilling. If the minerals under the NSO land cannot be developed from nearby lands and there is no less restrictive stipulation that would protect the resource values, then the lands should be closed to leasing.

  *Example*: All river corridors recommended as Wild and Scenic would be NSO for oil and gas leasing.

The circumstances for granting an exception, modification, or waiver to the specific lease stipulations included in this RMPA/EIS are documented in Appendix C. An *exception* is a one-time exemption to a lease stipulation, determined on a case-by-case basis. A *modification* is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. A *waiver* is a permanent exemption to a lease stipulation. Exceptions, modifications, and waivers apply to all types of stipulations, including NSO stipulations, and the authorized officer may only approve an exception, modification, or waiver "if the record shows that circumstances or relative resource values have changed or that the lessee can demonstrate that operations can be conducted without causing unacceptable impacts, and that less restrictive stipulations will protect the public interest" (U.S. Government, 1989).

### Lands Closed to Leasing

BLM's Land Use Planning Handbook allows for consideration of closing areas to oil and gas leasing. These are areas where it has been determined that other land uses or resource values cannot be adequately

protected with even the most restrictive lease stipulations; appropriate protection can be ensured only by closing the lands to leasing. Areas closed to leasing under each alternative are described in Sections 2.6 through 2.10 and shown on Figures 2-1 through 2-5 in Appendix A.

### 2.5.2 Draft RMPA Alternatives

This section summarizes the five alternatives analyzed in detail in this Draft RMPA/EIS. These alternatives present a range of reasonable management actions that were analyzed to assist decision-makers and the public in understanding the potential environmental consequences of each alternative.

The level of oil and gas development described in the RFD Scenario would apply to all five alternatives. Therefore, implementation of each alternative is assumed to result in no more than 37 exploratory and development wells (32 development wells for Alternative B) on new Federal oil and gas leases and up to 206 acres of associated disturbance from well pads, roads, and other facilities (e.g., gas plants, pipelines, and other infrastructure) during the 15- to 20-year period of analysis.

For each alternative, the BLM has identified specific lease stipulations that would protect important resource values. Additionally, the BLM could apply mitigation measures to surface use activities associated with existing land use authorizations as a COA for an APD. New lease stipulations resulting from the ROD and approved RMPA could be applied to other types of land uses and management actions (i.e., other than oil and gas leases) in order to maintain or achieve desired resource conditions.

Each alternative also considers closing different areas to oil and gas leasing. Public lands that are closed to leasing are subdivided into two groups. Tracts that have been closed by previous legislation or secretarial policy (wilderness, wilderness study areas, and Fort Ord National Monument) form one group of lands and are known as non-discretionary closures. The second group of closed lands, consisting of those proposed for closure under this plan, is called proposed discretionary closures.

Regardless of the alternative adopted in the approved ROD, existing lease stipulations attached to existing oil and gas leases, other than the 14 non-NSO leases subject to the settlement agreement, would continue to apply to those leases. New or additional lease stipulations would apply only to lands leased pursuant to the Final RMPA/EIS and ROD. Furthermore, environmental analyses would be conducted, as appropriate, for project- and site-specific actions proposed in the geographic area currently defined as the CCFO Planning Area. These site-specific evaluations would be facilitated by the planning and programmatic evaluation of impacts disclosed in the Final EIS supporting the ROD and approved RMPA. Finally, all areas currently closed to leasing under the 2007 HFO RMP would remain closed under all alternatives.

The components of each alternative are summarized in Table 2-3. Sections 2.6 through 2.10 describe each alternative, including the acreages that would be open or closed to oil and gas leasing and the stipulations applicable to management actions under that alternative. The goals, objectives, and management actions common to all alternatives are listed in Section 2.4 for energy and minerals. Figures 2-1 through 2-5 in Appendix A illustrate the major management elements of each alternative.

**Leases Subject to Settlement Agreement.** As described in Chapter 1, this EIS will analyze the impacts to 14 non-NSO leases that were identified in Case No. 11-06174 and Case No. 13-1749 (*Center for Biological Diversity v. Bureau of Land Management*, 2014) under each of the RMPA alternatives. While BLM will select a Preferred Alternative as part of its plan-level decision for determining which BLM-managed lands or subsurface Federal minerals are open or closed to oil and gas leasing, the determination for the 14 leases will be an implementation-level decision. For each of the 14 leases, the implementation decision will be to decide whether to issue the lease based on whether the land is available or unavailable for leasing, and if available, the BLM will determine whether the current lease stipulations are sufficient or if additional stipulations are needed. This implementation decision will be in compliance with the selected alternative of the RMPA. Table 2-4 presents a summary of the 14 non-NSO leases by alternative.

**Table 2-3. Summary of Alternatives**

| Alternative | Areas Closed/Open to Oil & Gas Leasing | Stipulations* | Calculated GIS Acres Open with CSU | Calculated GIS Acres Closed | Calculated GIS Acres Open with NSO |
|---|---|---|---|---|---|
| A (No Action) | Areas currently open would remain open to oil and gas leasing;<br>Areas closed under 2007 RMP would remain closed (Wilderness, WSAs, Clear Creek Serpentine ACEC, Ft. Ord National Monument). | Stipulations under the 2007 HFO RMP.<br>NSO stipulations for:<br>▪ ACECs; and<br>▪ R&PP leases.<br>Endangered Species stipulations for all open areas. | 683,800 | 67,500 | 41,700 |
| B | Lands within oil and gas fields and 0.5-mile buffer areas currently defined by DOGGR would be open;<br>All other areas would be closed, including those closed in the 2007 RMP (Wilderness, WSAs, Clear Creek Serpentine ACEC, Ft. Ord National Monument). | CSU stipulations on lands open to leasing. | 39,000 | 754,000 | N/A |
| C | High oil and gas occurrence potential areas (with the exception of core population areas of the giant kangaroo rat (*Dipodomys ingens*) in the vicinity of Panoche, Griswold, Tumey, and Ciervo Hills) or lands within oil and gas fields and 0.5-mile buffer areas would be open;<br>Moderate, low and no oil and gas occurrence potential areas would be closed;<br>Areas closed under 2007 RMP would remain closed (Wilderness, WSAs, Clear Creek Serpentine ACEC, Ft. Ord National Monument). | CSU stipulations on lands open to leasing.<br>NSO stipulations for:<br>▪ T&E critical habitat;<br>▪ BLM developed recreation sites and administrative sites; and<br>▪ Special status split estate lands (state parks, county parks, conservation easements, land trusts, scenic designations). | 368,800 | 394,400 | 29,800 |

**Table 2-3. Summary of Alternatives**

| Alternative | Areas Closed/Open to Oil & Gas Leasing | Stipulations* | Calculated GIS Acres Open with CSU | Calculated GIS Acres Closed | Calculated GIS Acres Open with NSO |
|---|---|---|---|---|---|
| D | Federal mineral estate underlying BLM surface estate would be open;<br>Split estate lands would be closed;<br>Ciervo Panoche Natural Area would be closed;<br>Areas closed under 2007 RMP would remain closed (Wilderness, WSAs, Clear Creek Serpentine ACEC, Ft. Ord National Monument). | CSU stipulations on lands open to leasing.<br>NSO stipulations for:<br>▪ ACECs; and<br>▪ R&PP leases. | 121,200 | 655,400 | 16,400 |
| E | Federal mineral estate outside of California DWR Bulletin 118 groundwater basins & sub-basins would be open;<br>Federal mineral estate within California DWR Bulletin 118 groundwater basins & sub-basins would be closed;<br>Areas closed under 2007 RMP would remain closed (Wilderness, WSAs, Clear Creek Serpentine ACEC, Ft. Ord National Monument). | CSU stipulations on lands open to leasing.<br>NSO stipulations for:<br>▪ 12-digit Hydrologic Unit Codes intersecting EPA impaired, perennial surface waters;<br>▪ 12-digit Hydrologic Unit Codes intersecting non-impaired, perennial surface waters that intersect split estate;<br>▪ 12-digit Hydrologic Unit Codes subwatersheds with the highest aquatic intactness score<br>▪ 0.25 miles from non-impaired, perennial surface waters; and<br>▪ 0.25 miles from eligible Wild & Scenic Rivers. | 487,200 | 99,400 | 206,400 |

* Standard lease terms apply to all areas open to leasing.
ACEC = Area of Critical Environmental Concern
NA = Not applicable
R&PP = Recreation & Public Purpose lease
T&E = Threatened & Endangered species
WSA = Wilderness Study Area

**Table 2-4. Summary of Leases Subject to Settlement by Alternative**

| Alternative | Calculated GIS Acres Open with CSU | Calculated GIS Acres Closed | Calculated GIS Acres Open with NSO |
|---|---|---|---|
| A (No Action) | 17,600 | N/A | N/A |
| B | 3,800 | 13,800 | N/A |
| C | 17,600 | N/A | N/A |
| D | 4,400 | 13,200 | N/A |
| E | 10,000 | 300 | 7,300 |

### 2.5.3 Management Actions

As discussed in Section 2.4, BLM would implement management actions established in the 2007 RMP, as well as new management actions. Table 2-5 summarizes how the 2007 RMP and new management actions would be implemented by the various Draft RMPA alternatives. The text of management actions common to all alternative is included in Section 2.4. Management actions applicable to each individual alternative are included in Sections 2.6 through 2.10.

**Table 2-5. Management Actions in Draft RMPA Alternatives**

| Management Action and Topic | Alternative A (No Action) | Alternative B | Alternative C | Alternative D | Alternative E |
|---|---|---|---|---|---|
| **Management Actions from 2007 RMP** | | | | | |
| ENERG-COM1. Close WSAs and Wilderness Areas | x | x | x | x | x |
| ENERG-COM3. NSO on R&PP lease areas | x | | | x | |
| ENERG-COM4. Availability of public lands for energy and mineral development | x | x | x | x | x |
| ENERG-COM5. Environmental and multiple-use management constraints | x | x | x | x | x |
| ENERG-C1. NSO in special status species habitat in ACECs | x | | | x | |
| ENERG-C4. Stipulations and mitigation for special status species | x | x | x | x | x |
| **New Management Actions** | | | | | |
| ENERG-A1. Closure of Fort Ord | x | x | x | x | x |
| ENERG-A2. Closure of lands outside of DOGGR fields and buffer areas | | x | | | |
| ENERG-A3. CSU stipulations on open lands | | x | x | x | x |
| ENERG-A4. Closure of moderate, low, and no occurrence potential | | | x | | |
| ENERG-A5. NSO to protect habitat and recreation | | | x | | |
| ENERG-A6. Closure of split estate | | | | x | |

**Table 2-5. Management Actions in Draft RMPA Alternatives**

| Management Action and Topic | Alternative A (No Action) | Alternative B | Alternative C | Alternative D | Alternative E |
|---|---|---|---|---|---|
| ENERG-A7. Closure to protect groundwater basins | | | | | x |
| ENERG-A8. NSO to protect surface waters | | | | | x |

# 2.6 Alternative A (No Action Alternative)

## 2.6.1 Description of Alternative A

Alternative A (Figure 2-1 in Appendix A) would utilize the 2015 RFD Scenario and would continue current management under the existing 2007 HFO RMP (BLM, 2007). The updated RFD Scenario would be utilized so that this No Action alternative would remain the baseline for comparison of impacts for the four action alternatives which also use the 2015 RFD Scenario. All Federal mineral estate would be available for oil and gas leasing, except for designated wilderness, wilderness study areas (WSAs), Fort Ord National Monument, and Clear Creek Serpentine Area of Critical Environmental Concern (ACEC), which are closed under the 2007 Hollister Field Office RMP.

NSO stipulations would be applied in ACECs and Recreation and Public Purpose (R&PP) leases. The Endangered Species stipulation from the 2007 Hollister Field Office RMP would apply in all areas open to leasing (see Appendix D in BLM, 2007).

Under Alternative A, approximately 683,800 acres of BLM oil and gas Federal mineral estate are identified as open to oil and gas leasing with CSU stipulation(s), 67,500 acres would be closed to leasing, and 41,700 acres would be subject to NSO lease stipulations (see Appendix D of BLM, 2007).

The No Action Alternative would continue the current management goals, objectives, and direction as specified in the 2007 Hollister Field Office RMP. In addition to the goals, objectives, and management actions common to all alternatives (see Section 2.4), BLM established the following management actions in the 2007 RMP that would apply to Alternative A:

- **ENERG-COM3.** Require No Surface Occupancy stipulations on all Recreation and Public Purposes lease areas. [*applies to Alternatives A and D only*]
- **ENERG-C1.** Oil and gas leases in ACECs would stipulate No Surface Occupancy in special status species habitat (BLM, 2007; Appendix D) [*applies to Alternatives A and D only*]

## 2.6.2 Leases Subject to Settlement Agreement under Alternative A – Subalternative 1

Under Alternative A, the BLM-managed areas that contain the 14 non-NSO leases, as identified in Case No. 11-06174 and Case No. 13-1749, would be open to leasing. The leases total approximately 17,600 acres. Under Subalternative 1, the implementation decision would be to issue all 14 non-NSO leases. The Endangered Species stipulation from the 2007 Hollister Field Office RMP would apply in all areas of the leases.

The 14 non-NSO leases are located in San Benito and Monterey Counties. In San Benito County, eight non-NSO leases are in a mountainous area that is less than 0.5 miles north of the San Benito Mountain Research Natural Area and approximately 4 miles south of the Panoche Hills South Wilderness Study Area. These leases are within the active Vallecitos oil and gas field or within approximately 7 miles of the field boundary, as shown in Figure 2-1 (detailed view).

In Monterey County, six non-NSO leases are located across two mountainous areas with the first area approximately 4 miles west of the City of San Ardo and 4 miles north of Lake San Antonio, and the second

area approximately 9 miles south of the City of San Ardo and 1.5 miles east of Lake San Antonio. The Monterey County leases are within approximately 10 miles of the active San Ardo oil and gas field, which is generally located east of the non-NSO leases in Monterey County.

### 2.6.3 Leases Subject to Settlement Agreement under Alternative A – Subalternative 2

Under Subalternative 2, the management decisions for Alternative A would still apply, and the BLM-managed areas that contain the 14 non-NSO leases, as identified in Case No. 11-06174 and Case No. 13-1749, would be open to leasing. However, for analysis purposes, the implementation decision would be: (1) that the two non-NSO leases as identified in Case No. 11-06174 should not have been issued; and (2) to not issue the 12 prospective non-NSO leases as identified in Case No. 13-1749.

## 2.7 Alternative B

### 2.7.1 Description of Alternative B

Under Alternative B (Figure 2-2 in Appendix A), Federal mineral estate within the boundaries of oil and gas fields plus a 0.5-mile buffer defined by DOGGR[8] would be available for leasing. Other areas would be closed to oil and gas leasing.

Controlled Surface Use (CSU) stipulations would apply to all lands open to leasing (see Appendix C). Under Alternative B, approximately 39,000 acres of BLM oil and gas Federal mineral estate are identified as open to oil and gas leasing with CSU stipulation(s) and 754,000 acres would be closed to leasing.

In addition to the goals, objectives, and management actions common to all alternatives (see Section 2.4), BLM established the following new management actions under Alternative B:

- **ENERG-A2.** Public lands within oil and gas fields plus a 0.5-mile buffer defined by DOGGR would be open to mineral leasing; all other public lands would be closed to mineral leasing. [*applies to Alternative B only*]
- **ENERG-A3.** Require CSU stipulations on all public lands open to mineral leasing. (See Appendix C.) [*applies to Alternatives B, C, D, and E only*]

### 2.7.2 Leases Subject to Settlement Agreement under Alternative B

Under Alternative B, of the BLM-managed areas that contain the 14 non-NSO leases, as identified in Case No. 11-06174 and Case No. 13-1749, approximately 3,800 acres would be open with CSU stipulations and 13,800 acres would be closed.

Under Alternative B, almost 80 percent of the 14 non-NSO lease acreages would be closed to leasing. Unlike Alternative A, Alternative B would change the current management goals, objectives, and direction of the lease areas from what was specified in the 2007 HFO RMP.

[8] In the Environmental Impact Report prepared by DOGGR under Senate Bill 4, each oil and gas field includes a buffer area around it within which future activities may occur. Within the CCFO Planning Area, the buffer is ½ mile around existing fields. (DOC, 2015 page 5-1)

# 2.8 Alternative C

## 2.8.1 Description of Alternative C

Under Alternative C (Figure 2-3 in Appendix A), unless currently closed under the 2007 Hollister Field Office RMP, Federal mineral estate would be open to leasing within high oil and gas occurrence potential areas or within the boundaries of oil and gas fields plus a 0.5-mile buffer currently identified by DOGGR, with the exception of core population areas of the giant kangaroo rat in the vicinity of Panoche, Griswold, Tumey, and Ciervo Hills, which are closed to leasing.

CSU stipulations would apply to all lands open to leasing (see Appendix C). NSO stipulations would apply to some lands open to leasing, including: (1) threatened and endangered species critical habitat; (2) BLM developed recreation and administrative sites; and (3) special status split estate lands (e.g., state parks, county parks, conservation easements, land trusts, and scenic designations).

Under Alternative C, approximately 368,800 acres of BLM oil and gas Federal mineral estate are identified as open to oil and gas leasing with CSU stipulation(s), 394,400 acres would be closed to leasing, and 29,800 acres would be subject to NSO stipulations. Of the approximately 394,400 acres closed to leasing, approximately 35,400 acres are located within or in the vicinity of Panoche, Griswold, Tumey, and Ciervo Hills. The areas that are proposed for closure to leasing within Panoche, Griswold, Tumey, and Ciervo Hills areas have been selected for the protection and recovery of a core population of the federally endangered giant kangaroo rat (*Dipodomys ingens*), as well as for protection and recovery of the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*). These areas are known to contain these listed species, and the proposed closure areas in the vicinity of Panoche, Griswold, Tumey, and Ciervo Hills are intended to maintain connectivity and movement corridors within suitable habitat for the San Joaquin kit fox. Additionally, portions of these areas are known to contain the federally endangered blunt-nosed leopard lizard (*Gambelia silus*).

While the NSO stipulation does not apply as a blanket protection for ACECs under Alternative C, protections would still be provided for the ACECs' biological resources. BLM policy is to apply the least restrictive stipulation necessary to adequately protect the identified resource value(s), thus CSU stipulations are being considered in addition to closures and NSO stipulations within the range of alternatives. Under Alternative C, approximately half of the Panoche/Coalinga ACEC, the core population areas of the giant kangaroo rat, would be closed to leasing. NSO stipulations would apply to threatened and endangered species critical habitat, and CSU stipulations would apply to the remainder of the ACEC acres left open to leasing. The CSU-Protected Species stipulation provides that presence of habitat or species may result in the proposed action being moved, modified, or delayed to mitigate project effects. This CSU stipulation also provides that offsite compensation that would satisfactorily offset the loss of habitat may be required.

In addition to the goals, objectives, and management actions common to all alternatives (see Section 2.4), BLM established the following new management actions that would apply to Alternative C:

- **ENERG-A3.** Require CSU stipulations on all public lands open to mineral leasing. (See Appendix C.) [*applies to Alternatives B, C, D, and E only*]
- **ENERG-A4.** Public lands within areas of high oil and gas potential or public lands within oil and gas fields plus a 0.5-mile buffer defined by DOGGR would be open to mineral leasing, with the exception of core population areas of the giant kangaroo rat in the vicinity of Panoche, Griswold, Tumey, and Ciervo Hills, which are closed to leasing. Public lands within areas of moderate, low, and no potential would be closed to mineral leasing. [*applies to Alternative C only*]
- **ENERG-A5.** Require NSO stipulations for public lands open to leasing which include: (1) threatened and endangered species critical habitat; (2) BLM developed recreation and administrative sites; and (3) special status split estate lands (e.g., state parks, county parks, conservation easements, land trusts, and scenic designations). [*applies to Alternative C only*]

### 2.8.2 Leases Subject to Settlement Agreement under Alternative C

Under Alternative C, of the BLM-managed areas that contain the 14 non-NSO leases, as identified in Case No. 11-06174 and Case No. 13-1749, approximately 17,600 acres would be open to leasing with CSU stipulations. Alternative C would not change the current management goals, objectives, and direction of the 14 leases, and no NSO stipulations would apply to the lease areas.

## 2.9 Alternative D

### 2.9.1 Description of Alternative D

Under Alternative D (Figure 2-4 in Appendix A), unless currently closed under the 2007 Hollister Field Office RMP, Federal mineral estate underlying BLM surface estate would be available for leasing. All BLM split estate lands and the Ciervo Panoche Natural Area (both BLM surface and split estate lands) would be closed to leasing.

CSU stipulations would apply to all lands open to leasing (see Appendix C). NSO stipulations would be applied in ACECs and R&PP leases.

Under Alternative D, approximately 121,200 acres of BLM oil and gas Federal mineral estate are identified as open to oil and gas leasing with CSU stipulation(s), 655,400 acres would be closed to leasing, and 16,400 acres would be subject to NSO stipulations.

In addition to the goals, objectives, and management actions common to all alternatives (see Section 2.4), BLM established the following management actions in the 2007 RMP that would apply to Alternative D:

- **ENERG-COM3.** Require No Surface Occupancy stipulations on all Recreation and Public Purposes lease areas. [*applies to Alternatives A and D only*]
- **ENERG-C1.** Oil and gas leases in ACECs would stipulate No Surface Occupancy in special status species habitat (BLM, 2007; Appendix D) [*applies to Alternatives A and D only*]

The following new management actions would also be established in addition to those established in the 2007 RMP for Alternative D:

- **ENERG-A3.** Require CSU stipulations on all public lands open to mineral leasing. (See Appendix C.) [*applies to Alternatives B, C, D, and E only*]
- **ENERG-A6.** Federal mineral estate underlying BLM surface estate would be open to mineral leasing. Split estate public lands would be closed to mineral leasing. [*applies to Alternative D only*]

### 2.9.2 Leases Subject to Settlement Agreement under Alternative D

Under Alternative D, of the BLM-managed areas that contain the 14 non-NSO leases, as identified in Case No. 11-06174 and Case No. 13-1749, approximately 13,200 acres would be closed and 4,400 acres would be open with CSU stipulations.

Under Alternative D, approximately 75 percent of the 14 non-NSO lease acreages would be closed to leasing. Unlike Alternative A, Alternative D would change the current management goals, objectives, and direction of the lease areas from what was specified in the 2007 HFO RMP.

## 2.10 Alternative E

### 2.10.1 Description of Alternative E

Under Alternative E (Figure 2-5 in Appendix A), unless currently closed under the 2007 Hollister Field Office RMP, Federal mineral estate outside of a California Department of Water Resources (DWR) Bulletin 118, Groundwater Basin or Sub-basin, would be available for leasing.

CSU stipulations would apply to all lands open to leasing (see Appendix C). NSO stipulations would apply to some lands open to leasing, including: (1) 12-digit Hydrologic Unit Codes (HUCs) intersecting EPA impaired, perennial surface waters (BLM surface and split estate); (2) 12-digit HUCs intersecting non-impaired, perennial surface waters that intersect split estate; (3) 12-digit HUC subwatersheds with the highest aquatic intactness score; (4) 0.25 miles from non-impaired, perennial surface waters; and (5) 0.25 miles from eligible Wild and Scenic Rivers.

Under Alternative E, approximately 487,200 acres of BLM oil and gas Federal mineral estate are identified as open to oil and gas leasing with CSU stipulation(s), 99,400 acres would be closed to leasing, and 206,400 acres would be subject to NSO stipulations.

In addition to the goals, objectives, and management actions common to all alternatives (see Section 2.4), BLM established the following new management actions that would apply to Alternative E:

- **ENERG-A3.** Require CSU stipulations on all public lands open to mineral leasing. (See Appendix C.) [*applies to Alternatives B, C, D, and E only*]
- **ENERG-A7.** Public lands outside of California DWR Bulletin 118 groundwater basins and sub-basins would be open to mineral leasing. Public lands within California DWR Bulletin 118 groundwater basins and sub-basins would be closed to mineral leasing. [*applies to Alternative E only*]
- **ENERG-A8.** Require NSO stipulations for public lands open to leasing which include: (1) 12-digit Hydrologic Unit Codes (HUCs) intersecting EPA impaired, perennial surface waters (BLM surface and split estate); (2) 12-digit HUCs intersecting non-impaired, perennial surface waters that intersect split estate; (3) 0.25 miles from non-impaired, perennial surface waters; and (4) 0.25 miles from eligible Wild and Scenic Rivers; and (5) 12-digit HUC subwatersheds with the highest aquatic intactness score. [*applies to Alternative E only*]

### 2.10.2 Leases Subject to Settlement Agreement under Alternative E

Under Alternative E, of the BLM-managed areas that contain the 14 non-NSO leases, as identified in Case No. 11-06174 and Case No. 13-1749, approximately 10,000 acres would be open with CSU stipulations, 7,300 acres would be open with NSO, and 300 acres would be closed. Under Alternative E, approximately 57 percent of the 14 non-NSO lease acreages would be open to leasing with CSU stipulations, 41 percent would be open in areas subject to NSO stipulations, and 2 percent would be closed to leasing. Unlike Alternative A, Alternative E would incorporate new restrictions in the current management goals, objectives, and direction of the lease areas from what was specified in the 2007 HFO RMP.

## 2.11 Comparison of Alternatives

A detailed comparison of alternatives is presented in Table 2-6. It should be noted that not all resources or resource uses presented in Chapter 3 (Affected Environment) or Chapter 4 (Environmental Consequences) of this Draft RMPA/EIS are included in Table 2-6. This is because revision of some decisions and management actions included in the 2007 Southern Diablo Mountain Range and Central Coast of California RMP do not relate to an increase in oil and gas exploration, development, and production, or the potential effects of that increase on other resources or resource uses, and, thus, are beyond the scope of this Draft RMPA/EIS. Additionally, because of the distribution of some resources, the effects of the decisions and management actions relating to oil and gas would be the same or similar under all alternatives. These resources are not included in Table 2-6.

Table 2-3 in Section 2.5.2 provides a comparison of acreages affected by allowable uses and management actions for each alternative. The environmental consequences of allowable uses and management actions proposed under each alternative are analyzed in Chapter 4.

## 2.12 Alternatives Considered but Not Analyzed in Detail

The following alternatives were considered as possible management approaches but were eliminated from detailed analysis because the BLM determined that they either did not meet the purpose and need for the RMPA/EIS (see Section 1.1), were covered under alternatives analyzed in the RMPA/EIS, or were not practical or feasible alternatives due to technical, economic, and legal and policy considerations. These alternatives include:

- Close Special Surface Status Split Estate Lands
- No Action Alternative without NSO Stipulations
- Ban Well Stimulation Technologies
- Close All Lands Except Existing Leases
- Close All Lands to Oil and Gas Leasing

The specific rationale for dismissing each alternative from further consideration is described below.

**Table 2-6. Comparison of Alternatives**

| Resource | Alternative A | Alternative B | Alternative C | Alternative D | Alternative E |
|---|---|---|---|---|---|
| Energy and Minerals | Provides most flexibility for oil and gas drilling | Provides least flexibility for oil and gas drilling | Provides more flexibility for oil and gas drilling than Alternatives B and D | Provides more flexibility for oil and gas drilling than Alternative B | Provides more flexibility for oil and gas drilling than Alternatives B, C, and D |
| Hazardous Materials and Public Safety | Does not confine impacts to the public due to upset conditions<br>Emergency response times could be longest | Confines impacts to the public due to upset conditions to areas of existing oil and gas production and active fields<br>Emergency response times would likely be shortest | Does not confine impacts to the public due to upset conditions<br>Emergency response times could be third longest | Confines impacts to the public due to upset conditions to BLM surface estate<br>Emergency response times could be second shortest | Confines impacts to the public due to upset conditions to outside groundwater basins<br>Emergency response times could be second longest |
| Air Quality and Atmospheric Conditions | Greatest potential for causing localized air quality impacts to sensitive receptors | Limited potential for causing localized air quality impacts to sensitive receptors | Potential for causing localized air quality impacts to sensitive receptors but minimized with CSU/Management stipulations | Limited potential for causing localized air quality impacts to sensitive receptors but minimized with CSU/Management stipulations | Potential for causing localized air quality impacts to sensitive receptors but minimized with CSU/ Management stipulations |
| Groundwater Resources | Could impact 4 ground-water basins assigned a high priority ranking | Could impact 1 ground-water basin assigned a high priority ranking | Could impact 3 ground-water basins assigned a high priority ranking | Could impact 3 ground-water basins assigned a high priority ranking | Would not impact ground-water basins assigned a high priority ranking<br>Most protective for groundwater resources |
| Surface Water Resources | Could impact largest number of watersheds | With Alternative E, would impact fewest number of watersheds | With Alternative D, Alternative C would impact fewer watersheds than Alternative A but more than Alternative B and E | With Alternative C, Alternative D would impact fewer watersheds than Alternative A but more than Alternative B and E | With Alternative B, would impact fewest number of watersheds |

**Table 2-6. Comparison of Alternatives**

| Resource | Alternative A | Alternative B | Alternative C | Alternative D | Alternative E |
|---|---|---|---|---|---|
| Biological Resources | Least protective of biological resources | With Alternative E, more protective of biological resources than Alternative A but less protective than Alternatives C and D | Most protective of T&E species habitat | Most protective of the Ciervo Panoche Natural Area and the special status species found in that area | With Alternative B, more protective of biological resources than Alternative A but less protective than Alternatives C and D |
| Visual Resources | Potential to be inconsistent with VRM Class II and Class III objectives | Potential to be inconsistent with VRM Class III objectives | Potential to be inconsistent with VRM Class II and Class III objectives | Potential to be inconsistent with VRM Class II and Class III objectives | Potential to be inconsistent with VRM Class I, Class II, and Class III objectives |
| Special Management Areas | Less adverse effects than Alternatives C and E, more adverse effects than B and D | Least adverse effects | Greatest adverse effects | Less adverse effects than Alternatives A, C, and E, more adverse effects than Alternative B | Less adverse effects than Alternative C, more adverse effects than Alternatives A, B, and D |
| Social and Economic Conditions | Adverse effects from split estate would be similar to Alternatives C and E | Less adverse effects from split estate lands than Alternatives A, C, and E | Adverse effects from split estate would be similar to Alternatives A and E | No potential adverse effects from split estate lands | Adverse effects from split estate would be similar to Alternatives A and C |
| Lands and Realty | Greatest flexibility for BLM's options for locating ground disturbing activities | Most restrictive of BLM's options for locating ground disturbing activities | Greater flexibility for BLM's options for locating ground disturbing activities than Alternatives B and D | Greater flexibility for BLM's options for locating ground disturbing activities than Alternative B | Greater flexibility for BLM's options for locating ground disturbing activities than Alternatives B, C and D |
| Wild and Scenic Rivers | Greatest potential for impacts to National Wild and Scenic Rivers | Negligible impact to National Wild and Scenic Rivers | Greater potential for impacts to National Wild and Scenic Rivers than Alternative B, similar potential as Alternative E and less than potential than A and D | Greater potential for impacts to National Wild and Scenic Rivers than Alternative B, C, and E, similar potential as Alternative A | Greater potential for impacts to National Wild and Scenic Rivers than Alternative B, similar potential as Alternative C and less than potential than A and D |

### 2.12.1 Close Special Surface Status Split Estate Lands

The BLM considered an alternative that would close special surface status split estate lands (e.g., state parks, county parks, conservation easements, land trusts, scenic designations) to oil and gas leasing and development. Other split estate lands would be open to oil and gas leasing and development. BLM eliminated this alternative from further consideration, because closure of all split estate lands under Alternative D would include closure of special surface status split estate lands. Therefore, closure of lands under this alternative is already addressed in this RMPA/EIS under Alternative D and no separate analysis is necessary.

### 2.12.2 No Action Alternative without NSO Stipulations

The BLM considered an alternative that would close the same lands as would be closed under the No Action Alternative (Alternative A). However, NSO stipulations for ACECs and R&PP leases would be removed. BLM eliminated this alternative from further consideration because such an alternative would be too similar to the No Action Alternative and thus has already been covered in the range of alternatives evaluated in this RMPA/EIS.

### 2.12.3 Ban Well Stimulation Technologies

BLM has statutory authority for regulation of all oil and gas field operations on Federal mineral estate under the Mineral Leasing Act of 1920, the Federal Land Policy and Management Act (FLPMA) of 1976, and the Federal Oil and Gas Royalty Management Act of 1982, among others. Regulatory authority to implement these statutes is codified in Titles 43 and 40 of the Code of Federal Regulations. Under Federal regulations the BLM, as the Federal minerals and/or surface owner, is responsible for regulating oilfield operations (well and surface resources) on all Federal mineral estate.

The BLM considered an alternative that would ban the use of well stimulation technologies on Federal mineral estate. This alternative was eliminated from further consideration because while BLM has the authority to deny individual permits, it does not have authority to deny all future well stimulation technologies. Rather BLM has a responsibility under the FLPMA to act as a steward for the development, conservation, and protection of Federal lands, by implementing multiple use principles and recognizing, among other values, the Nation's need for domestic sources of minerals from the public lands. A ban or moratorium would not satisfy the BLM's multiple-use responsibilities under the FLPMA.

Additionally, the BLM Land Use Planning Handbook H-1601-1 states that, for oil and gas decisions, "[w]hen applying leasing restrictions, the least restrictive constraint to meet the resource protection objective should be used" (BLM, 2005, Appendix C, pg. 24). An alternative banning well stimulation technologies in the Plan Area would be inconsistent with the basic policy objectives for management of oil and gas resources in BLM.

### 2.12.4 Close All Lands Except Existing Leases

The BLM considered an alternative where all lands would be closed to oil and gas leasing and development except for existing leases. As discussed in Section 2.12.3, the FLPMA of 1976 establishes the authority and provides guidance for how public lands are to be managed by the BLM. Furthermore, it defines BLM's mission to manage public lands on the basis of multiple use and sustained yield. Energy development is one of those uses.

Likewise, the Mining and Minerals Policy Act of 1970 declares that "it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining [and] minerals... (2) the orderly and economic development of domestic mineral resources [and] reserves.... For the purposes of this section 'minerals' shall include all minerals and minerals fuels including oil [and] gas."

In addition, BLM's Land Use Planning Handbook 1601-1 indicates that lands should not be closed to leasing unless it is determined that other land uses or resources cannot be adequately protected with even the most restrictive lease stipulations. Finally, BLM Manual 3120 states "It is the Bureau of Land Management's (BLM) policy to encourage the orderly development of Federal onshore oil and gas resources by offering lands for oil and gas leasing by competitive oral bidding when eligible lands are available."

The alternatives brought forward in this RMPA/EIS represent the areas within the CCFO Planning Area that the BLM needs to consider closing to protect sensitive resources, but it is not necessary to close all lands to leasing except existing leases. Furthermore, this alternative would be contrary to BLM's mission and policies, which dictate management of public lands for multiple-uses and encourage energy development. Therefore, an alternative that would close all lands to oil and gas leasing except existing leases has been eliminated from further consideration in this RMPA/EIS.

### 2.12.5 Close All Lands to Oil and Gas Leasing

The BLM considered an alternative that would close all Federal mineral estate to oil and gas leasing and development. For the same reasons discussed in Section 2.12.4, this alternative would be contrary to BLM's mission and policies, which dictate management of public lands for multiple-uses and encourage energy development. Therefore, an alternative that would close all lands to oil and gas leasing has been eliminated from further consideration in this RMPA/EIS.