

## CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

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## **4 ENVIRONMENTAL CONSEQUENCES**

### **4.1 INTRODUCTION**

This chapter provides a description of the potentially significant impacts to the physical, biological, and social aspects of the human environment that could result from implementing each alternative oil and gas leasing scenario considered in detail. Impacts are defined as modifications to the environment, as it presently exists, that are brought about by an outside action. It should be noted that no ground-disturbing activities would result directly from the leasing decisions that this document addresses. Rather, any future oil and gas activities under new leases resulting in ground-disturbing activities will require further environmental review, in accordance with NEPA, prior to implementing proposed site-specific the activities.

Resource specialists identified the types of impacts that each alternative could have relative to the issues identified using the information regarding the potentially affected environment described in Chapter 3 and a description of possible oil and gas activities as detailed in Appendices C and D. Impacts can be beneficial (positive) or adverse (negative). Impacts can be long lasting (long-term), or temporary (short-term). In the case of this analysis, long-term impacts are defined as those that would substantially remain for the life of the project or beyond. Short-term impacts are defined as those changes to the environment during construction that would generally revert to preconstruction conditions at or within a few years of the end of construction. Impacts can vary in significance from no change, or only a slightly discernible change, to a full modification or elimination of the environmental condition. In alternatives 3, 4, 4a, 5, and 5a lease stipulations were identified to be applied to areas sensitive to potential oil and gas activities to mitigate or eliminate impacts. Separate unpublished background reports were prepared for air, watershed, biological, recreation, scenic, and cultural resources addressed in Chapter 3 and Chapter 4. These background reports are located in the project files in the Forest Supervisor's Office.

Frequent reference to the various maps in the DEIS map packet will help in understanding the effects discussed in this chapter.

### **4.2 SCOPE OF ANALYSIS**

The scope of the analysis addresses three types of potential effects described below. Consistency with the Forest Plan is also discussed where appropriate.

#### **4.2.1 Direct Effects**

Direct effects are caused by a specific action or activity at the same time and place. Leasing itself would not cause direct effects though it is reasonable to expect direct effects to result from leasing, i.e. subsequent exploration and development. These effects on lands and resources were analyzed

assuming the reasonable foreseeable development activities (RFD) described Chapter 2 and in Appendix D. These activities are associated with the exploration, development, and production of oil and gas and include activities such as construction of roads and drill pads, the drilling and production of wells, and the building of pipelines, powerlines, and other facilities associated with oil and gas development and production.

#### **4.2.2 Indirect Effects**

Indirect effects are caused by a specific action or activity but typically occur later in time or removed in distance from the direct cause. Indirect effects on lands and resources were analyzed for the alternatives. Direct and indirect effects are sometimes considered together in the analysis and are not specifically identified or disclosed separately.

#### **4.2.3 Cumulative Effects**

Cumulative effects result from incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions.

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Reasonably foreseeable actions consist of projects, actions, or developments that can be projected, with a reasonable degree of confidence, to occur within a defined timeframe and that will impact the same environmental factors.

An analysis of cumulative impacts has been performed for each of the resource categories addressed in chapter 3, Affected Environment.

Road construction, oil and gas development, livestock grazing, recreation and other uses have occurred in and adjacent to Los Padres National Forest. Also, some past activities have occurred and present activities are occurring. A discussion of these activities is included in the cumulative effects analysis under the appropriate resource headings in this document.

#### **4.2.4 Consistency With Forest Plan**

An analysis of consistency with the goals and objectives and standards and guidelines of the current Los Padres National Forest (LPNF) Forest Plan is made where applicable.

### **4.3 *PHYSICAL ENVIRONMENT***

#### **4.3.1 Introduction**

The issues concerning the physical environment relate to air quality and watershed resources. The environmental consequences of potential oil and gas activity on each of these areas, as set forth in the RFD, are described below.

## 4.3.2 Air Quality

### 4.3.2.1 Introduction

In this section, the potential air quality impacts associated with the alternative leasing scenarios are assessed. Maximum estimated emission rates are compared against air quality district-established thresholds to determine the potential for significant direct impacts. Estimates of total potential emission are based on Table 2-1, "Assumptions Common to All Alternatives," and emission factors cited in Table 4-1.

TABLE 4-1: REFERENCES FOR EMISSIONS CALCULATIONS

Emission Factor Description	Emission Factor Reference
Drill Rig - Diesel	EPA AP-42, Table 3.2.7-1 (PM <sub>10</sub> , SO <sub>x</sub> , ROC, CO) (EPA, 1993); Ventura County APCD (NO <sub>x</sub> ) (Bain and Moon, 1993)
Power Plant Emissions	South Coast AQMD CEQA Handbook, Table A9-11-B (SCAQMD, 1993)
Trucks on Dirt (dust)	Calculated in accordance with EPA AP-42, Section 11.2.1
Vehicles on Dirt (dust)	Calculated in accordance with EPA AP-42, Section 11.2.1
Grading (dust)	South Coast AQMD CEQA Handbook, Table A9-9
Pipeline Installation - Roadside (dust)	Calculated using emission factors from the South Coast AQMD CEQA Handbook, Table A9-9
Pipeline Installation - Off road (dust)	Calculated using emission factors from the South Coast AQMD CEQA Handbook, Table A9-9
Access Road Construction (dust)	Calculated using emission factors from the South Coast AQMD CEQA Handbook, Table A9-9
Fugitive VOC Emissions	Ventura County APCD (VCAPCD, 1996)
Construction Equipment - Diesel	EPA AP-42, Table 3.2.7-1
Construction Equipment - Gasoline	EPA AP-42, Table 3.2.7-2
IC Engines - Natural Gas	EPA AP-42, Table 3.3.2-1
Production Tanks (ROC)	Engineering Calculations (Bain and Moon, 1993)
Flare - Natural Gas	EPA AP-42 (NO <sub>x</sub> , PM <sub>10</sub> , ROC, CO), Table 1.4-1 (industrial boilers) Material Balance (SO <sub>x</sub> ) (Bain and Moon, 1993)
Crew Vehicles -Gasoline	EPA Users Guide to MOBILE2 (NO <sub>x</sub> , ROC, CO) (Bain and Moon, 1993) - California CARB (SO <sub>x</sub> , PM <sub>10</sub> ) (Bain and Moon, 1993)
Commuting Trucks	South Coast AQMD CEQA Handbook, Table A9-5-K
Commuting Passenger Vehicles	South Coast AQMD CEQA Handbook, Table A9-5-J

Other types of air quality impacts are assessed qualitatively. More thorough analysis would be required after leases are sold, if and when lessees submit more site-specific project proposals.

In addition to the direct air quality impacts, the potential for other types of air quality impacts are discussed, in accordance with NEPA requirements. They include indirect impacts, cumulative impacts, irreversible/irretrievable impacts, and short-term/long-term tradeoffs. Consistency with the Forest Plan's air quality element is also discussed. Where applicable, mitigation measures are proposed to reduce project impacts.



### 4.3.2.2 Types of Air Quality Impacts

#### 4.3.2.2.1 General

Four types of direct air quality impacts are discussed in this section. The first impact assesses the potential for project emissions to exceed emissions thresholds. The second impact discusses the potential for the project to exceed the ambient air quality standards, which are listed in Table 4-1. The third impact discusses the consistency of the project with applicable air quality management plans. And the fourth impact discusses the potential for the project to generate unacceptable off-site odors. The significance criteria used to assess these four types of direct air quality impacts are discussed in the following text.

#### 4.3.2.2.2 Specific

##### 4.3.2.2.2.1 Significance Criteria for Impact Type 1: Pollutant Emissions

Table 4-2 shows the significance criteria for project emissions. These criteria vary by air district and by type of emission source. If the incremental emissions associated with a project alternative exceed these thresholds, a potential significant impact would result. The purpose of these emission thresholds is to indicate whether an emission rate has the potential to cause a new exceedance or to exacerbate an existing exceedance of an ambient air quality standard.

TABLE 4-2: SIGNIFICANCE CRITERIA FOR EMISSIONS DURING PROJECT OPERATIONS

Air District	Emission Sources	NO <sub>x</sub>	ROC	SO <sub>x</sub>	CO	PM <sub>10</sub>
Santa Barbara County APCD	All Project Sources	55 lb/day; 10 ton/yr	55 lb/day; 10 ton/yr	55 lb/day; 10 ton/yr	150 lb/day; 25 ton/yr	80 lb/day; 15 ton/yr
	Motor Vehicles Only	25 lb/day	25 lb/day	--	--	--
Ventura County APCD	Ojai Planning Area	5 lb/day	5lb/day	--	--	--
	City of Simi Valley	13.7 ton/yr	13.7 ton/yr	--	--	--
	Remaining areas	25 lb/day	25 lb/day			
Monterey Bay Unified APCD	All Project Sources	137 lb/day	137 lb/day	--	--	--
	Onsite Sources Only	--	--	150 lb/day	550 lb/day	82 lb/day
San Luis Obispo APCD	All Project Sources	10lb/day	10lb/day	10lb/day	550 lb/day;	10lb/day

Ozone, which is formed through photochemical reactions involving NO<sub>x</sub> and ROC, behaves as a regional pollutant, meaning that concentrations tend to be fairly uniform over large geographical areas. Therefore, emissions released from a single project combine with emissions from other sources in the air basin to contribute to regional ozone concentrations. For this reason, the significance criteria for NO<sub>x</sub> and ROC in Table 4-2 were used to provide a definitive indication of the project's impacts on regional ozone concentrations.

The other criteria pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) behave locally, meaning that peak concentrations of these pollutants tend to exist near the sources of emissions. However, the magnitude of an emission rate alone is not enough to determine the resulting ambient air concentration. The resulting concentration also depends on factors such as the geographical area over which the emissions are spread and the local meteorological conditions. For this reason, dispersion modeling and direct comparison to ambient air quality standards is a more definitive method for determining localized impacts than comparison to emission thresholds.

A detailed approach such as dispersion modeling requires data that can only be available at the individual project level. In this program-level analysis, comparison to emission thresholds is the only quantitative evaluation possible. Therefore, for SO<sub>x</sub>, CO, and PM<sub>10</sub>, the emission thresholds are used as general indicators for potential impacts, rather than as definitive indicators. If the emissions from a project alternative are less than the emission thresholds, it is reasonable to assume that the project would not create a significant air quality impact. However, if the emissions exceed the emission thresholds, it means that a more detailed project-level analysis would be necessary to determine whether the impact would be significant.

Emissions from all activities expected to take place in all prospect areas within each air district were summed to compare project emissions to the significance thresholds established by each district. (Refer to Table 2-1 for a list of assumptions made concerning activities that *could* take place simultaneously.)

This method of calculation results in an extremely conservative estimate for peak daily emissions, since:

- *it assumes peak emissions from all prospect areas could occur on the same day;*
- *prospect areas that span two different air districts are included in the emissions for both districts; and*
- *the maximum number of wells that might be drilled in a particular year.*

As a result, it is most likely that actual project emissions would be significantly less than that indicated by the data.

Prior to comparing emissions to the significance criteria, two adjustments were made to the emissions. First, emissions from existing permitted sources were excluded, as the air district already acknowledges their potential emissions. These sources include power plant production and, in Ventura County, drill rigs (Ventura County APCD, 1996). This adjustment is consistent with Ventura County APCD guidance (VCAPCD, 1994). Second, NO<sub>x</sub> and ROC emissions that must be offset in accordance with each district's new source review rule are also excluded from the emissions. Because ozone behaves as a regional pollutant, NO<sub>x</sub> and ROC offsets would be expected to effectively negate any increase in ozone levels. In fact, offsets are typically required at more than a one-to-one ratio, meaning that the offsets would result in a net air quality benefit. Emissions for other pollutants were not excluded, even if offsets would be required. Impacts from pollutants other than ozone are more localized; therefore, offsets may not necessarily negate the localized impacts.

#### **4.3.2.2.2.2 Significance Criteria for Impact Type 2: Ambient Air Quality Levels**

A project would create a significant air quality impact if it causes an exceedance of any ambient air quality standard or makes a substantial (measurable) contribution to an existing exceedance of an air quality standard. As mentioned previously, this criterion is a more definitive measure of significance than comparison of emissions to thresholds.

The new source review rules of the affected air districts are designed to protect ambient air quality from any new or worsened exceedance of the standards. Therefore, any emission source subject to new source review is assumed to cause no exceedance or measurable increase of an existing exceedance of any standard.

For those sources not subject to new source review, such as vehicles and fugitive dust, the significance criteria for emissions (Table 4-1) are used as a first indication of a potential exceedance of an ambient air quality standard. Emissions that are less than the significance criteria are assumed to cause no exceedance or measurable increase of an existing exceedance of any standard. For emissions that are greater than the significance criteria, dispersion modeling could be performed to determine more definitively whether a local exceedance would occur.

Dispersion modeling analyses, if necessary, would be performed at the project level, when sufficient detail is available for a thorough analysis.

#### **4.3.2.2.2.3 Significance Criteria for Impact Type 3: Consistency with Air Quality Management Plans**

In each district's air quality management plan (AQMP), countywide emission inventories are projected for a series of future milestone years. These inventories are primarily based on employment and population forecasts, consistent with the county's general plan. Attainment of the ozone standard is forecast by showing continued reductions in countywide emissions of NO<sub>x</sub> and ROC with each successive milestone year. Eventually, the emissions are reduced to a level at which the ozone standard would no longer be exceeded.

An oil and gas project is considered to be consistent with the AQMP if its direct and indirect emissions are accounted for in these countywide emission inventories. For Ventura County, emissions from equipment subject to the air pollution control district's new source review rule are not included in the assessment, as they are assumed to be consistent by definition (VCAPCD, 1996). Mobile source emissions and drill rig emissions (except in Ventura County) would be subject to a consistency determination.

Specific project-level detail is necessary to make a consistency determination. Therefore, consistency with the AQMP should be made at the project level, as each applicant proposes to develop a lease area. The appropriate air district would need to be consulted to determine if the project's emissions, when combined with all other oil and gas projects in the county, are within the corresponding emission budgets in the AQMP. If not, the project's air quality impact would be considered cumulatively significant, because the cumulative emissions of all oil and gas projects in the air district could delay the progress toward attainment set forth in the AQMP (VCAPCD, 1994).

#### **4.3.2.2.4 Significance Criteria for Impact Type 4: Offsite Odors**

The fugitive VOC emissions generated at oil fields can contain odorous substances. A significant impact would result if objectionable odors occur off-site. During well drilling and production, detectable odors are sometimes present on-site, in close proximity to the wells and associated piping. Historically, however, odors typically dissipate before they leave the site. If project level analysis does identify the potential for off-site odors, mitigation measures will be required as conditions of approval for a particular project. As a result, the proposed project is not expected to create significant odor impacts.

#### ***4.3.2.3 Mitigation Measures***

The mitigation measures listed in Chapter 2 would reduce the air quality impacts associated with all alternatives. The measures focus on reducing emissions of ozone precursors from sources that would not be subject to new source review. Other measures are recommended to reduce fugitive dust emissions during both project construction and operations. Although project-level analysis would be required to determine the significance of fugitive dust emissions, the mitigation measures are recommended as standard practice for dust control.

These measures will be used where appropriate on each project. After consultation with the applicable county APCD, appropriate measures will be applied to individual projects even if the impacts of the individual project would be less than significant. Also, in consultation with the local APCD, Best Available Control Technology (BACT) will be required at all times during implementation of projects. If additional mitigation measures are identified during project-level analysis, they will supplement the measures presented here.

#### ***4.3.2.4 Impacts of Alternative 1: No Action, No New Leasing***

##### **4.3.2.4.1 Direct Impacts**

Table 4-3 lists the resulting projected incremental project emissions associated with Alternative 1. Both the short-term emissions (associated with the year of maximum development activity) and long-term emissions (associated with project buildout) are listed. The aforementioned adjustments to project emissions for existing permitted sources and NO<sub>x</sub> and ROC emissions that must be offset are reflected in this table. For comparison, the significance criteria are also listed. The following text includes a discussion of impacts by individual air district. Note that exceedances of the significance criteria are shaded in the table.

**San Luis Obispo County APCD** – Alternative 1 would not generate any development activity in San Luis Obispo County. Therefore, there would be no air quality impacts in this air district.

**Monterey Bay Unified APCD** - Alternative 1 would not generate any development activity in Monterey County. Therefore, there would be no air quality impacts in this air district.

**Ventura County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 5 ton/yr for both ROC and NO<sub>x</sub>. Therefore, offsets would be triggered for both ROC and NO<sub>x</sub> at all prospect areas. As a result, NO<sub>x</sub> and ROC emissions for Ventura County include only unpermitted source emissions. Emissions from permitted sources (drill rigs, power plants, production tanks, temporary flares, and natural gas well pumps) are excluded, as offsets would be required for these sources.

During maximum development activity, potential emissions of both ROC and NO<sub>x</sub> exceed their respective significance thresholds. Therefore, ozone impacts could be significant. Other pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) have no significance criteria for emissions in Ventura County. Therefore, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, potential ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts could continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO<sub>x</sub> and PM<sub>10</sub> after project buildout are relatively small, so it is unlikely that long-term impacts of these two pollutants would be significant in Ventura County. CO emissions are not as definitive. Project-level analysis would be necessary to determine the long-term impacts for this pollutant.

**Santa Barbara County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 55 lb/day or 10 ton/yr for NO<sub>x</sub> or ROC. Based on the emission estimates for this alternative, NO<sub>x</sub> offsets would likely be required, but ROC offsets would probably not be required. As a result, the NO<sub>x</sub> emissions include only unpermitted source emissions. The permitted sources, which are excluded, include power plants, temporary flares, and natural gas well pumps. Emissions of ROC, CO, and PM<sub>10</sub> include all sources except power plants.

During maximum development activity, potential emissions of ROC, NO<sub>x</sub>, and PM<sub>10</sub> exceed their respective significance thresholds. Emissions of CO are less than the significance threshold. SO<sub>x</sub> has no significance criterion. Therefore, ozone impacts could be significant and CO impacts would not be significant. For PM<sub>10</sub> and SO<sub>x</sub>, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, no emission thresholds would be exceeded. Although no threshold exists for SO<sub>x</sub>, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO<sub>x</sub> would be significant in Santa Barbara County. Therefore, after project buildout, all pollutant impacts should be non-significant in Santa Barbara County.

TABLE 4-3: COMPARISON OF POTENTIAL PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTERNATIVE 1

Air District	Emission Sources	Pollutant	Emission Units	Potential Short-term Project Emissions	Potential Long-term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO <sub>x</sub>	lb/day	758	2	25
		ROC	lb/day	86	3	25
	All Project Sources	NO <sub>x</sub>	lb/day	818	2	55
			ton/yr	12	0.5	10
		ROC	lb/day	103	23	55
			ton/yr	5	4	10
		CO	ton/yr	24	14	25
		PM <sub>10</sub>	lb/day	1,183	0.2	80
			ton/yr	29	0.1	15
Ventura County APCD	All Project Sources	NO <sub>x</sub>	lb/day	2,218	11	25
		ROC	lb/day	259	50	25
Monterey Bay Unified APCD	All Project Sources	NO <sub>x</sub>	lb/day	n/a	n/a	137
		ROC	lb/day	n/a	n/a	137
	On-Site Sources Only	SO <sub>x</sub>	lb/day	n/a	n/a	150
		CO	lb/day	n/a	n/a	550
		PM <sub>10</sub>	lb/day	n/a	n/a	82
San Luis Obispo APCD	All Project Sources	NO <sub>x</sub>	lb/day	n/a	n/a	10
		ROC	lb/day	n/a	n/a	10
		SO <sub>x</sub>	lb/day	n/a	n/a	10
		CO	lb/day	n/a	n/a	550
		PM <sub>10</sub>	lb/day	n/a	n/a	10

Note: Exceedances of the significance criteria are shaded.

#### 4.3.2.4.2 Indirect Impacts

Alternative 1 could generate indirect air quality impacts as the natural gas and oil extracted at the wells is refined and shipped to the end users where it is combusted. Petroleum-based fuel combustion would result in emissions of criteria pollutants as well as other hazardous air pollutants. However, the demand for these fuels is such that the rate of fuel consumption would remain constant with or without the proposed project. The products produced by the project would replace fuel supplied from some other source. Therefore, the indirect air quality impacts associated with Alternative 1 are not expected to be significant.

#### 4.3.2.4.3 Cumulative Impacts

Cumulative air quality impacts include the combined impacts from Alternative 1 together with other past, present, or reasonably foreseeable projects. The cumulative impacts of localized pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) would depend on the locations of the individual projects and any other projects in the near vicinity. Such an assessment can only be conducted at the time of project-level analysis. The cumulative impacts of ozone would depend on the project's consistency with the local air quality management plan. If Alternative 1 is consistent with the local AQMP, and the AQMP demonstrates progress toward achieving the ambient ozone standards, then by definition the contribution of the project to cumulative air quality impacts is

non-significant. If the project were not consistent with the AQMP, then its cumulative ozone impacts would be significant.

#### **4.3.2.4.4 Irreversible/Irretrievable & Short-term/Long-term Impacts**

The proposed project could result in a short-term irretrievable loss of air quality. However, the air quality losses are reversible in the long-term once leases terminate.

#### **4.3.2.4.5 Mitigation Measures**

With mitigation identified in Section 4.3.2.3, and in Chapter 2, the short-term ozone impacts during project development could remain significant in Ventura and Santa Barbara Counties. Long-term air quality impacts on regional ozone levels would remain potentially significant in Ventura County, depending on the level of mitigation. If NO<sub>x</sub> and ROC emissions were completely offset, for example, ozone impacts would be eliminated. This measure would be necessary to reduce long-term ozone impacts to non-significant levels.

#### **4.3.2.4.6 Significant Unavoidable Impacts**

Alternative 1 could produce a short-term, significant unavoidable impact to regional ozone levels in Ventura and Santa Barbara counties during maximum development activity.

#### **4.3.2.4.7 Forest Plan Consistency Discussion**

The Forest Plan calls for compliance with California air quality guidelines and other local restrictions in order to protect air quality in the Forest's Class I and Class II airsheds. Such compliance is to be achieved through cooperation with appropriate Federal, State, and county regulatory agencies. Consistency with the Forest Plan will be realized by (1) determining the level of mitigation that is acceptable to the affected air districts, (2) working with the air districts to ensure incorporation of the individual projects into the AQMPs, (3) carrying out sufficient project-level analysis to ensure that air quality in Class I areas is protected, and (4) BACT will be required as well as the use of offsets near the Forest, if available.

### ***4.3.2.5 Impacts of Alternative 2: Emphasize Oil and Gas Development***

#### **4.3.2.5.1 Direct Impacts**

Table 4-4 lists the resulting projected incremental project emissions associated with Alternative 2. Both the short-term emissions (associated with the year of maximum development activity) and long-term emissions (associated with project buildout) are listed. Both of the aforementioned adjustments to project emissions are reflected in this table. For comparison, the significance criteria are also listed. The following text includes a discussion of impacts by individual air district.

**San Luis Obispo County APCD** – According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 25 ton/yr for both ROC and NO<sub>x</sub>. Based on the emission estimates, emission offsets would probably not be triggered for either ROC or NO<sub>x</sub>.

As a result, the emissions in Table 4-4 for San Luis Obispo County include all project emissions except power plant emissions (already permitted).

During maximum development activity, emissions of all potential pollutants exceed the daily significance threshold, and CO emissions exceed the annual threshold as well. Therefore, ozone impacts could be significant, and impacts of all other pollutants would require project-level analysis for a definitive assessment.

After project buildout, potential NO<sub>x</sub> emissions exceed the daily threshold and CO emissions exceed the annual threshold. Therefore, long-term ozone impacts continue to be significant. But because the state and national CO standards are for time periods shorter than one day, and because CO emissions do not exceed the daily threshold, CO impacts would not be significant. Emissions of all other pollutants are less than their respective thresholds; therefore, impacts would be less than significant.

**Monterey Bay Unified APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 137 lb/day for both ROC and NO<sub>x</sub>. Based on the projected emission estimates, emission offsets would probably not be triggered for either ROC or NO<sub>x</sub>. Therefore, the emissions for Monterey County include all project emissions except power plant emissions (already permitted).

During maximum development activity, potential emissions of all pollutants exceed their respective significance thresholds. Therefore, ozone impacts could be significant, and impacts of all other pollutants would require project-level analysis for a definitive assessment. After project buildout, emissions of all pollutants are less than their respective thresholds; therefore, impacts would be less than significant.

**Ventura County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 5 ton/yr for both ROC and NO<sub>x</sub>. Therefore, offsets could be triggered for both ROC and NO<sub>x</sub> at all prospect areas. As a result, ROC and NO<sub>x</sub> emissions for Ventura County include only unpermitted source emissions. Emissions from permitted sources (drill rigs, power plants, production tanks, temporary flares, and natural gas well pumps) are excluded, as offsets would be required for these sources.

During maximum development activity, projected emissions of both ROC and NO<sub>x</sub> exceed their respective significance thresholds. Therefore, ozone impacts could be significant. Other pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) have no significance criteria for emissions in Ventura County. Therefore, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, potential ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts could continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO<sub>x</sub> and PM<sub>10</sub> after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of these two pollutants would be significant in Ventura County. CO emissions are not as definitive and project-level analysis would be necessary to determine the long-term impacts for this pollutant.



TABLE 4-4: COMPARISON OF POTENTIAL PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTERNATIVE 2

Air District	Emission Sources	Pollutant	Emission Units	Potential Short-term Project Emissions	Potential Long-term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO <sub>x</sub>	lb/day	5,838	15	25
		ROC	lb/day	634	21	25
	All Project Sources	NO <sub>x</sub>	lb/day	6,705	190	55
			ton/yr	120	34	10
		ROC	lb/day	844	156	55
			ton/yr	37	28	10
		CO	ton/yr	131	107	25
		PM <sub>10</sub>	lb/day	8,871	3	80
			ton/yr	179	1	15
Ventura County APCD	All Project Sources	NO <sub>x</sub>	lb/day	6,933	18	25
		ROC	lb/day	941	256	25
Monterey Bay Unified APCD	All Project Sources	NO <sub>x</sub>	lb/day	1,761	33	137
		ROC	lb/day	184	9	137
	On-Site Sources Only	SO <sub>x</sub>	lb/day	160	1	150
		CO	lb/day	1,934	129	550
		PM <sub>10</sub>	lb/day	2,435	1	82
San Luis Obispo APCD	All Project Sources	NO <sub>x</sub>	lb/day	1,776	33	10
		ROC	lb/day	187	9	10
		SO <sub>x</sub>	lb/day	160	1	10
		CO	lb/day	2,033	144	550
		PM <sub>10</sub>	lb/day	2,438	1	10

Note: Exceedances of the significance criteria are shaded.

**Santa Barbara County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 55 lb/day or 10 ton/yr for NO<sub>x</sub> or ROC. Based on the emission estimates for this alternative, NO<sub>x</sub> offsets will likely be required at South Cuyama, but probably would not be required at the smaller prospect areas (La Brea Canyon, Figueroa Mountain, and Rincon Creek). ROC offsets would probably not be required at any of the prospect areas. As a result, the NO<sub>x</sub> emissions include only unpermitted source emissions at South Cuyama, and all emissions except power plants at La Brea Canyon, Figueroa Mountain, and Rincon Creek. The permitted sources, which are excluded at South Cuyama, include power plants, temporary flares, and natural gas well pumps. Emissions of ROC, CO, and PM<sub>10</sub> include all sources except power plants.

During maximum development activity, projected emissions of ROC, NO<sub>x</sub>, CO, and PM<sub>10</sub> exceed their respective significance thresholds. SO<sub>x</sub> has no significance criterion. Therefore, ozone impacts could be significant. For CO, PM<sub>10</sub>, and SO<sub>x</sub>, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, NO<sub>x</sub> and ROC emissions could exceed the daily threshold, CO emissions could exceed the annual threshold, and PM<sub>10</sub> emissions are less than their respective thresholds.

Therefore, long-term ozone impacts could continue to be significant. Long-term PM<sub>10</sub> impacts would be non-significant. Although no threshold exists for SO<sub>x</sub>, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO<sub>x</sub> would be significant in Santa Barbara County. CO emissions are not as definitive; therefore, project-level analysis would be necessary to determine the long-term impacts for this pollutant.

#### **4.3.2.5.2 Indirect Impacts**

Alternative 2 could generate indirect air quality impacts as the natural gas and oil extracted at the wells is refined and shipped to the end users where it is combusted. Petroleum-based fuel combustion would result in emissions of criteria pollutants as well as other hazardous air pollutants. However, the demand for these fuels is such that the rate of fuel consumption would remain constant with or without the proposed project. The products produced by the project would replace fuel supplied from some other source. Therefore, the indirect air quality impacts associated with Alternative 2 are expected to be non-significant.

#### **4.3.2.5.3 Cumulative Impacts**

Cumulative air quality impacts include the combined impacts from Alternative 2 together with other past, present, or reasonably foreseeable projects. The cumulative impacts of localized pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) would depend on the locations of the individual projects and any other projects in the near vicinity. Such an assessment can only be conducted at the time of project-level analysis. The cumulative impacts of ozone would depend on the project's consistency with the local air quality management plan. If Alternative 2 is consistent with the local AQMP, and the AQMP demonstrates progress toward achieving the ambient ozone standards, then by definition the contribution of the project to cumulative air quality impacts is non-significant. If the project were not consistent with the AQMP, then its cumulative ozone impacts would be significant.

#### **4.3.2.5.4 Irreversible/Irretrievable & Short-term/Long-term Impacts**

The proposed project could result in a short-term irretrievable loss of air quality. However, the air quality losses are reversible in the long-term once leases terminate.

#### **4.3.2.5.5 Mitigation Measures**

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development could remain significant in Ventura and Santa Barbara Counties. Long-term air quality impacts on regional ozone levels would remain potentially significant in Ventura County, depending on the level of mitigation. If NO<sub>x</sub> and ROC emissions were completely offset, for example, ozone impacts would be eliminated. This measure would be necessary to reduce long-term ozone impacts to non-significant levels.

#### **4.3.2.5.6 Significant Unavoidable Impacts**

Alternative 2 could produce a short-term, significant unavoidable impact to regional ozone levels in Ventura, Monterey, San Luis Obispo, and Santa Barbara counties during maximum development activity.

#### **4.3.2.5.7 Forest Plan Consistency Discussion**

The Forest Plan calls for compliance with California air quality guidelines and other local restrictions in order to protect air quality in the Forest's Class I and Class II airsheds. Such compliance is to be achieved through cooperation with appropriate Federal, State, and county regulatory agencies. Consistency with the Forest Plan will be realized by (1) determining the level of mitigation that is acceptable to the affected air districts, (2) working with the air districts to ensure incorporation of the individual projects into the AQMPs, (3) carrying out sufficient project-level analysis to ensure that air quality in Class I areas is protected, and (4) BACT will be required as well as the use of offsets near the Forest, if available.

#### **4.3.2.6 *Impacts of Alternative 3: Meet Forest Plan Direction***

##### **4.3.2.6.1 Direct Impacts**

Table 4-5 lists the resulting projected incremental project emissions associated with Alternative 3. Both the short-term emissions (associated with the year of maximum development activity) and long-term emissions (associated with project buildout) are listed. Both of the aforementioned adjustments to project emissions are reflected in this table. For comparison, the significance criteria are also listed. The following text includes a discussion of impacts by individual air district.

**San Luis Obispo County APCD** – According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 25 ton/yr for both ROC and NO<sub>x</sub>. Based on the projected emission estimates, emission offsets would probably not be triggered for either ROC or NO<sub>x</sub>. As a result, the emissions in Table 4-5 for San Luis Obispo County include all project emissions except power plant emissions (already permitted).

During maximum development activity, potential emissions of all pollutants exceed the daily significance threshold, and CO emissions exceed the annual threshold as well. Therefore, ozone impacts could be significant, and impacts of all other pollutants would require project-level analysis for a definitive assessment.

After project buildout, potential NO<sub>x</sub> emissions exceed the daily threshold and CO emissions exceed the annual threshold. Therefore, long-term ozone impacts could continue to be significant. But because the state and national CO standards are for time periods shorter than one day, and because CO emissions do not exceed the daily threshold, CO impacts would not be significant. Emissions of all other pollutants are less than their respective thresholds; therefore, impacts would be less than significant.

**Monterey Bay Unified APCD** - Alternative 3 would not generate any development activity in Monterey County. Therefore, there would be no air quality impacts in this air district.

**Ventura County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 5 ton/yr for both ROC and NO<sub>x</sub>. Therefore, offsets would be triggered for both ROC and NO<sub>x</sub> at all prospect areas. As a result, ROC and NO<sub>x</sub> emissions for Ventura County include only unpermitted source emissions. Emissions from

permitted sources (drill rigs, power plants, production tanks, temporary flares, and natural gas well pumps) are excluded, as offsets would be required for these sources.

During maximum development activity, potential emissions of both ROC and NO<sub>x</sub> exceed their respective significance thresholds. Therefore, ozone impacts could be significant. Other pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) have no significance criteria for emissions in Ventura County. Therefore, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

TABLE 4-5: COMPARISON OF POTENTIAL PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTS 3 & 5

Air District	Emission Sources	Pollutant	Emission Units	Potential Short-term Project Emissions	Potential Long-term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO <sub>x</sub>	lb/day	3,805	15	25
		ROC	lb/day	447	21	25
	All Project Sources	NO <sub>x</sub>	lb/day	4,584	132	55
			ton/yr	73	24	10
		ROC	lb/day	610	130	55
			ton/yr	28	24	10
		CO	ton/yr	133	105	25
		PM <sub>10</sub>	lb/day	6,220	2	80
			ton/yr	112	0.4	15
Ventura County APCD	All Project Sources	NO <sub>x</sub>	lb/day	4,858	15	25
		ROC	lb/day	600	111	25
Monterey Bay Unified APCD	All Project Sources	NO <sub>x</sub>	lb/day	n/a	n/a	137
		ROC	lb/day	n/a	n/a	137
	On-Site Sources Only	SO <sub>x</sub>	lb/day	n/a	n/a	150
		CO	lb/day	n/a	n/a	550
		PM <sub>10</sub>	lb/day	n/a	n/a	82
San Luis Obispo APCD	All Project Sources	NO <sub>x</sub>	lb/day	1,011	33	10
		ROC	lb/day	112	9	10
		SO <sub>x</sub>	lb/day	112	1	10
		CO	lb/day	1,314	144	550
		PM <sub>10</sub>	lb/day	1,378	1	10

Note: Exceedances of the significance criteria are shaded.

After project buildout, potential ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts could continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO<sub>x</sub> and PM<sub>10</sub> after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of these two pollutants would be significant in Ventura County. CO emissions are not as definitive and project-level analysis would be necessary to determine the long-term impacts for this pollutant.

**Santa Barbara County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 55 lb/day or 10 ton/yr for NO<sub>x</sub> or ROC. Based on the emission estimates for this alternative, NO<sub>x</sub> offsets will likely be required at South Cuyama, but probably would not be required at the smaller prospect areas (La Brea Canyon,

Figueroa Mountain, and Rincon Creek). ROC offsets would probably not be required at any of the prospect areas. As a result, the NO<sub>x</sub> emissions include only unpermitted source emissions at South Cuyama, and all emissions except power plants at La Brea Canyon, Figueroa Mountain, and Rincon Creek. The permitted sources, which are excluded at South Cuyama, include power plants, temporary flares, and natural gas well pumps. Emissions of ROC, CO, and PM<sub>10</sub> include all sources except power plants.

During maximum development activity, projected emissions of ROC, NO<sub>x</sub>, CO, and PM<sub>10</sub> exceed their respective significance thresholds. SO<sub>x</sub> have no significance criterion. Therefore, ozone impacts could be significant. For CO, PM<sub>10</sub>, and SO<sub>x</sub>, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, potential CO emissions exceed the annual threshold; NO<sub>x</sub>, ROC, and PM<sub>10</sub> emissions are less than their respective thresholds. Therefore, long-term ozone and PM<sub>10</sub> impacts would not be significant. Although no threshold exists for SO<sub>x</sub>, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO<sub>x</sub> would be significant in Santa Barbara County. CO emissions are not as definitive and project-level analysis would be necessary to determine the long-term impacts for this pollutant.

#### **4.3.2.6.2 Indirect Impacts**

Alternative 3 could generate indirect air quality impacts as the natural gas and oil extracted at the wells is refined and shipped to the end users where it is combusted. Petroleum-based fuel combustion would result in emissions of criteria pollutants as well as other hazardous air pollutants. However, the demand for these fuels is such that the rate of fuel consumption would remain constant with or without the proposed project. The products produced by the project would replace fuel supplied from some other source. Therefore, the indirect air quality impacts associated with Alternative 3 are expected to be non-significant.

#### **4.3.2.6.3 Cumulative Impacts**

Cumulative air quality impacts include the combined impacts from Alternative 3 together with other past, present, or reasonably foreseeable projects. The cumulative impacts of localized pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) would depend on the locations of the individual projects and any other projects in the near vicinity. Such an assessment can only be conducted at the time of project-level analysis. The cumulative impacts of ozone would depend on the project's consistency with the local air quality management plan. If Alternative 3 is consistent with the local AQMP, and the AQMP demonstrates progress toward achieving the ambient ozone standards, then by definition the contribution of the project to cumulative air quality impacts is non-significant. If the project were not consistent with the AQMP, then its cumulative ozone impacts would be significant.

#### **4.3.2.6.4 Irreversible/Irretrievable & Short-term/Long-term Impacts**

The proposed project could result in a short-term irretrievable loss of air quality. However, the air quality losses are reversible in the long-term once leases terminate.

#### **4.3.2.6.5 Mitigation Measures**

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development could remain significant in Ventura and Santa Barbara Counties. Long-term air quality impacts on regional ozone levels would remain potentially significant in Ventura County, depending on the level of mitigation. If NO<sub>x</sub> and ROC emissions were completely offset, for example, ozone impacts would be eliminated. This measure would be necessary to reduce long-term ozone impacts to non-significant levels.

#### **4.3.2.6.6 Significant Unavoidable Impacts**

Alternative 3 could produce a short-term, significant unavoidable impact to regional ozone levels in Ventura, San Luis Obispo, and Santa Barbara counties during maximum development activity.

#### **4.3.2.6.7 Forest Plan Consistency Discussion**

The Forest Plan calls for compliance with California air quality guidelines and other local restrictions in order to protect air quality in the Forest's Class I and Class II airsheds. Such compliance is to be achieved through cooperation with appropriate Federal, State, and county regulatory agencies. Consistency with the Forest Plan will be realized by (1) determining the level of mitigation that is acceptable to the affected air districts, (2) working with the air districts to ensure incorporation of the individual projects into the AQMPs, and (3) carrying out sufficient project-level analysis to ensure that air quality in Class I areas is protected.

### ***4.3.2.7 Impacts of Alternative 4: Emphasize Surface Resources***

#### **4.3.2.7.1 Direct Impacts**

Table 4-6 lists the resulting projected incremental project emissions associated with Alternative 4. Both the short-term emissions (associated with the year of maximum development activity) and long-term emissions (associated with project buildout) are listed. Both of the aforementioned adjustments to project emissions are reflected in this table. For comparison, the significance criteria are also listed. The following text includes a discussion of impacts by individual air district.

**San Luis Obispo County APCD** – According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 25 ton/yr for both ROC and NO<sub>x</sub>. Based on the emission estimates, emission offsets would probably not be triggered for either ROC or NO<sub>x</sub>. As a result, the emissions in Table 4-6 for San Luis Obispo County include all project emissions except power plant emissions (already permitted).

During maximum development activity, emissions of all pollutants could exceed the daily significance threshold, and CO emissions could exceed the annual threshold as well. Therefore, ozone impacts could be significant, and impacts of all other pollutants would require project-level analysis for a definitive assessment.

After project buildout, NO<sub>x</sub> potential emissions exceed the daily threshold and CO emissions exceed the annual threshold. Therefore, long-term ozone impacts could continue to be significant. But because the state and national CO standards are for time periods shorter than one day, and because CO emissions do not exceed the daily threshold, CO impacts would not be significant. Emissions of all other pollutants are less than their respective thresholds; therefore, impacts would be less than significant.

**Monterey Bay Unified APCD** - Alternative 4 would not generate any development activity in Monterey County. Therefore, there would be no air quality impacts in this air district.

**Ventura County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 5 ton/yr for both ROC and NO<sub>x</sub>. Therefore, offsets would be triggered for both ROC and NO<sub>x</sub> at all prospect areas. As a result, ROC and NO<sub>x</sub> emissions for Ventura County include only unpermitted source emissions. Emissions from permitted sources (drill rigs, power plants, production tanks, temporary flares, and natural gas well pumps) are excluded, as offsets would be required for these sources. During maximum development activity, potential emissions of both ROC and NO<sub>x</sub> exceed their respective significance thresholds. Therefore, ozone impacts would be significant. Other pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) have no significance criteria for emissions in Ventura County. Therefore, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, potential ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts could continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO<sub>x</sub> and PM<sub>10</sub> after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of these two pollutants would be significant in Ventura County. CO emissions are not as definitive and project-level analysis would be necessary to determine the long-term impacts for this pollutant.

**Santa Barbara County APCD** - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 55 lb/day or 10 ton/yr for NO<sub>x</sub> or ROC. Based on the emission estimates for this alternative, NO<sub>x</sub> offsets will likely be required at South Cuyama, but probably would not be required at the smaller prospect areas (La Brea Canyon, Figueroa Mountain, and Rincon Creek). ROC offsets would probably not be required at any of the prospect areas. As a result, the NO<sub>x</sub> emissions include only unpermitted source emissions at South Cuyama, and all emissions except power plants at La Brea Canyon, Figueroa Mountain, and Rincon Creek. The permitted sources, which are excluded at South Cuyama, include power plants, temporary flares, and natural gas well pumps. Emissions of ROC, CO, and PM<sub>10</sub> include all sources except power plants.

During maximum development activity, projected emissions of ROC, NO<sub>x</sub>, CO, and PM<sub>10</sub> exceed their respective significance thresholds. SO<sub>x</sub> has no significance criterion. Therefore, ozone impacts could be significant. For CO, PM<sub>10</sub>, and SO<sub>x</sub>, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, projected CO emissions exceed the annual threshold; NO<sub>x</sub>, ROC, and PM<sub>10</sub> emissions are less than their respective thresholds. Therefore, long-term ozone and PM<sub>10</sub> impacts would not be significant. Although no threshold exists for SO<sub>x</sub>, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO<sub>x</sub> would be significant in Santa Barbara County. CO emissions are not as definitive and project-level analysis would be necessary to determine the long-term impacts for this pollutant.

#### **4.3.2.7.2 Indirect Impacts**

Alternative 4 could generate indirect air quality impacts as the natural gas and oil extracted at the wells is refined and shipped to the end users where it is combusted. Petroleum-based fuel combustion would result in emissions of criteria pollutants as well as other hazardous air pollutants. However, the demand for these fuels is such that the rate of fuel consumption would remain constant with or without the proposed project. The products produced by the project would replace fuel supplied from some other source. Therefore, the indirect air quality impacts associated with Alternative 4 are expected to be non-significant.

#### **4.3.2.7.3 Cumulative Impacts**

Cumulative air quality impacts include the combined impacts from Alternative 4 together with other past, present, or reasonably foreseeable projects. The cumulative impacts of localized pollutants (SO<sub>x</sub>, CO, and PM<sub>10</sub>) would depend on the locations of the individual projects and any other projects in the near vicinity. Such an assessment can only be conducted at the time of project-level analysis. The cumulative impacts of ozone would depend on the project's consistency with the local air quality management plan. If Alternative 4 is consistent with the local AQMP, and the AQMP demonstrates progress toward achieving the ambient ozone standards, then by definition the contribution of the project to cumulative air quality impacts is non-significant. If the project were not consistent with the AQMP, then its cumulative ozone impacts would be significant.

#### **4.3.2.7.4 Irreversible/Irretrievable & Short-term/Long-term Impacts**

The proposed project could result in a short-term irretrievable loss of air quality. However, the air quality losses are reversible in the long-term once leases terminate.

#### **4.3.2.7.5 Mitigation Measures**

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development remain potentially significant in Ventura and Santa Barbara Counties. Long-term air quality impacts on regional ozone levels remain potentially significant in Ventura County, depending on the level of mitigation. If NO<sub>x</sub> and ROC emissions were completely offset, for example, ozone impacts would be eliminated. This measure would be necessary to reduce long-term ozone impacts to non-significant levels.



#### 4.3.2.7.6 Significant Unavoidable Impacts

Alternative 4 could produce a short-term, significant unavoidable impact to regional ozone levels in Ventura, San Luis Obispo, and Santa Barbara counties during maximum development activity.

TABLE 4-6: COMPARISON OF SIGNIFICANCE CRITERIA FOR ALTERNATIVES 4, 4A & 5A

Air District	Emission Sources	Pollutant	Emission Units	Potential Short-term Project Emissions	Potential Long-term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO <sub>x</sub>	lb/day	3,505	15	25
		ROC	lb/day	406	21	25
	All Project Sources	NO <sub>x</sub>	lb/day	4,284	132	55
			ton/yr	65	24	10
		ROC	lb/day	561	111	55
			ton/yr	27	20	10
		CO	ton/yr	133	105	25
		PM <sub>10</sub>	lb/day	5,611	2	80
			ton/yr	93	0.4	15
Ventura County APCD	All Project Sources	NO <sub>x</sub>	lb/day	4,858	15	25
		ROC	lb/day	600	99	25
Monterey Bay Unified APCD	All Project Sources	NO <sub>x</sub>	lb/day	n/a	n/a	137
		ROC	lb/day	n/a	n/a	137
	On-Site Sources Only	SO <sub>x</sub>	lb/day	n/a	n/a	150
		CO	lb/day	n/a	n/a	550
		PM <sub>10</sub>	lb/day	n/a	n/a	82
San Luis Obispo APCD	All Project Sources	NO <sub>x</sub>	lb/day	1,011	33	10
		ROC	lb/day	112	9	10
		SO <sub>x</sub>	lb/day	112	1	10
		CO	lb/day	1,314	144	550
		PM <sub>10</sub>	lb/day	1,378	1	10

Note: Exceedances of the significance criteria are shaded.

#### 4.3.2.7.7 Forest Plan Consistency Discussion

The Forest Plan calls for compliance with California air quality guidelines and other local restrictions in order to protect air quality in the Forest's Class I and Class II airsheds. Such compliance is to be achieved through cooperation with appropriate Federal, State, and county regulatory agencies. Consistency with the Forest Plan will be realized by (1) determining the level of mitigation that is acceptable to the affected air districts, (2) working with the air districts to ensure incorporation of the individual projects into the AQMPs, and (3) carrying out sufficient project-level analysis to ensure that air quality in Class I areas is protected.

#### 4.3.2.8 *Impacts of Alternative 4a: Alternative 4 with Roadless Area Emphasis*

The difference between Alternative 4 and Alternative 4a is that the Inventoried Roadless Areas (IRA's) are under a No Surface Occupancy (NSO) stipulation in Alternative 4a. Due to reasons

explained below, this has the effect of only slightly reducing the amount of oil projected to be extracted -- from 17.4 million barrels in Alternative 4 to 17.3 million barrels in Alternative 4a. The 0.1 million barrel difference in the projected amount of oil extracted is caused by oil and gas resources in the La Brea Canyon HOGPA not being feasible to recover under Alternative 4a.

There is also a projected major change in the location and method of accessing the oil and gas resource in the South Cuyama HOGPA. The number of wells projected on LPNF is reduced from 28 for Alternative 4 to five wells in Alternative 4a. Also, the number of pads is reduced from four to one, the two miles of roads on LPNF is eliminated, and the miles of pipeline is reduced from two to one. However the expected oil extracted for the South Cuyama HOGPA is not changed and remains at 14.0 million barrels. The reason for this is that the oil and gas resource is still expected to be accessed, but from adjacent private lands. The construction of wells, pads, roads and pipelines that were projected for LPNF under Alternative 4 are expected to still occur in Alternative 4a, but on private lands adjacent to the Forest.

The amount of oil expected to be extracted is reduced from 17.4 million barrels in Alternative 4 to 17.3 million barrels in Alternative 4a, a reduction of only ½ of 1%. This is less than uncertainty in the projections themselves. The impacts associated with the Forest in the South Cuyama HOGPA are expected to shift to private lands adjacent to the Forest. Consequently, the air quality impacts for Alternative 4a are assumed to be the same as for Alternative 4.

#### ***4.3.2.9 Impacts of Alternative 5: Combination of Alternatives 3 and 4***

Since the RFD projections for Alternative 5 are the same as Alternative 3 the impacts to air quality would also be the same.

#### ***4.3.2.10 Impacts of Alternative 5a: Alternative 5 with Roadless Area Emphasis***

The difference between Alternative 5 and Alternative 5a is that, like Alternative 4a, the Inventoried Roadless Areas are under a No Surface Occupancy (NSO) stipulation in Alternative 5a. Also for Alternative 5a, lands that cannot be accessed by directional drilling are not to be leased (NL).

The differences between Alternative 4 and 5 is that Alternative 3 stipulations (except biological) are applied in HOGPAs in Alternative 5; and inaccessible lands are not leased in Alternative 5. However, this difference is almost totally negated in comparing Alternative 4a to Alternative 5a. The reason for this is that both alternatives 4a and 5a allocate the IRA's to NSO. Essentially, all the lands that had different stipulations when comparing Alternative 4 to Alternative 5 are allocated to NSO or No Lease (NL) in both alternatives 4a and 5a. As a result, the RFD projections and projected air quality impacts for alternatives 4a and 5a are the same.

#### ***4.3.2.11 Impacts of New Preferred Alternative:***

The projected air quality impacts for the New Preferred Alternative are somewhat less than those projected for Alternative 5a. The impacts projected to occur in the San Luis Obispo air district for Alternative 5a are eliminated because the Lopez Canyon HOGPA is not leased in the New Preferred Alternative. Also, the emissions projected for Ventura and Santa Barbara counties are

reduced due to the Figueroa Mountain, Piedra Blanca, and Rincon HOGPAs not being leased in the New Preferred Alternative.

TABLE 4-7: COMPARISON OF POTENTIAL PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR THE NEW PREFERRED ALTERNATIVE

Air District	Emission Sources	Pollutant	Emission Units	Potential Short-term Project Emissions	Potential Long-term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO <sub>x</sub>	lb/day	1,637	9	25
		ROC	lb/day	255	17	25
	All Project Sources	NO <sub>x</sub>	lb/day	2,001	77	55
			ton/yr	64	14	10
		ROC	lb/day	352	90	55
			ton/yr	15	2	10
		CO	ton/yr	87	51	25
		PM <sub>10</sub>	lb/day	3,024	2	80
			ton/yr	80	0.4	15
Ventura County APCD	All Project Sources	NO <sub>x</sub>	lb/day	4,492	15	25
		ROC	lb/day	418	59	25

Note: Exceedances of the significance criteria are shaded.

#### 4.3.2.12 Summary of Air Quality Impacts

Potential Impacts to air quality are summarized by alternative in Tables 4-6 and 4-7. As discussed in the individual narratives for the respective alternatives, air quality impacts connected with alternatives 4, 4a, and 5a are projected to be essentially the same.

Table 4-8 shows the maximum air quality impacts that could occur during the year of maximum development activity for each alternative. These impacts would be short-term, and include contributions from both construction and operation activities.

TABLE 4-8: POTENTIAL DIRECT AIR QUALITY IMPACTS FOR THE YEAR OF MAXIMUM ACTIVITY  
(WITHOUT MITIGATION)

Air District	Potentially Significant Impacts	Non-Significant Impacts	Project-Level Analysis Necessary for Determination
<b>Alternative 1</b>			
Ventura County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors; Local CO concentrations	Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	N/A
San Luis Obispo APCD	No air quality impacts	No air quality impacts	N/A
<b>Alternative 2</b>			
Ventura County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Monterey Bay Unified APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
San Luis Obispo APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
<b>Alternatives 3 &amp; 5</b>			
Ventura County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	N/A
San Luis Obispo APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
<b>Alternatives 4, 4a &amp; 5a</b>			
Ventura County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	N/A
San Luis Obispo APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
<b>New Preferred Alternative</b>			
Ventura County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (CO, NO <sub>x</sub> and ROC)	Off-site odors	Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	N/A
San Luis Obispo APCD	No air quality impacts	No air quality impacts	N/A

TABLE 4-9: POTENTIAL DIRECT AIR QUALITY IMPACTS AFTER PROJECT BUILDOUT (WITHOUT MITIGATION)

Air District	Potentially Sig. Impacts	Non-Significant Impacts	Project-Level Analysis Necessary for Determination
<b>Alternative 1</b>			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO <sub>x</sub> and ROC); Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	No air quality impacts
San Luis Obispo APCD	No air quality impacts	No air quality impacts	No air quality impacts
<b>Alternative 2</b>			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO <sub>x</sub> and ROC)	Off-site odors; Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Monterey Bay Unified APCD	None	Off-site odors; Regional ozone levels (NO <sub>x</sub> and ROC); Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	AQMP consistency
San Luis Obispo APCD	Regional ozone levels (NO <sub>x</sub> only)	Off-site odors; Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	AQMP consistency
<b>Alternative 3 &amp; 5</b>			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO <sub>x</sub> and ROC); Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	No air quality impacts
San Luis Obispo APCD	Regional ozone levels (NO <sub>x</sub> only)	Off-site odors; Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	AQMP consistency
<b>Alternative 4, 4a &amp; 5a</b>			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO <sub>x</sub> and ROC); Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	No air quality impacts
San Luis Obispo APCD	Regional ozone levels (NO <sub>x</sub> only)	Off-site odors; Local CO, SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	AQMP consistency
<b>New Preferred Alternative</b>			
Ventura County APCD	Regional ozone levels (NO <sub>x</sub> only)	Off-site odors; Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO <sub>x</sub> and ROC); Local SO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> concentrations	Local CO concentrations; AQMP consistency
Monterey Bay Unified APCD	No air quality impacts	No air quality impacts	N/A
San Luis Obispo APCD	No air quality impacts	No air quality impacts	N/A

Table 4-8 shows that during maximum development activity, each of the alternatives could generate significant impacts to regional ozone levels. Alternative 1 could produce a significant impact in two air districts; Alternative 2 could produce a significant impact in four air districts; and alternatives 3 and 4 could each produce significant impacts in three air districts. Other impacts from the alternatives are either non-significant or require project-level analysis for a definitive assessment. Table 4-9 shows the air quality impacts after project buildout. These impacts could be long-term, and may include contributions from operation and production activities. All construction would have been concluded by this time. This table shows that after project buildout, each of the alternatives would continue to generate significant impacts to regional ozone levels. Alternative 1 would produce a significant impact in one air district; Alternative 2 would produce a significant impact in three air districts; and Alternatives 3 and 4 would each produce significant impacts in two air districts. Other impacts from the alternatives are either non-significant or require project-level analysis for a definitive assessment.

### **4.3.3 Watershed Resources**

#### **4.3.3.1 *Introduction***

This section provides an estimate of effects to the watershed resources (surface and ground water; soils; and riparian, wetland, and floodplain areas) from implementing each alternative leasing scenario. The same CWE risk analysis process described and utilized to characterize the affected environment of watersheds in Chapter 3 has been used to estimate the cumulative watershed effects of the various oil and gas leasing alternative scenarios being considered in detail.

#### **4.3.3.2 *Avoidance and Mitigation of Watershed Impacts***

Potential watershed impacts are avoided or mitigated by either not leasing or restricting surface occupancy for very sensitive areas and/or applying Best Management Practices (BMPs) where they would mitigate potentially significant impacts.

A Management Agreement between the California State Water Resources Control Board and the Forest Service recognizes that Best Management Practices (BMPs) (FS 2000) are appropriate for controlling non-point source pollution on U.S. Forest Service-administered lands. Use of BMPs will mitigate potential impacts to surface water to a level less than significant except for potential cumulative watershed impacts. The BMPs are listed in Appendix I of the Forest Plan, Appendix Table IV of the Watershed Background Report and Appendix E of this document. BMPs are tied to implementation of the Clean Water Act and their adoption by the State of California gives them the force of law. Use of BMPs will be required by means of a lease information notice under all alternatives and will mitigate non-cumulative surface water pollution below the significance level.

The requirements of current laws and regulations, as explained in Section 2.3.4.2 of this FEIS, also will be applied to all projects and will mitigate potential impacts to both ground and surface water quality. The particular application of these laws and regulations, and the protection that they afford, will be explained in more detail later in this chapter.

However, there still can be cumulative watershed effects that may be significant when projected oil and gas development is added to existing conditions. For this reason the watershed analysis focused on cumulative watershed effects (CWE).

#### **4.3.3.3 *Criteria for Significant Impacts to Watershed Resources***

Cumulative Watershed Effects (CWE) is utilized to estimate the possible effects that soil disturbance associated with oil and gas, exploration, production, and development activities would have on surface water. Significant impacts are considered to have the potential to occur when the potential disturbance results in high or very high risk for adverse CWE, that is, when the percent roaded area is above 75 percent of the Threshold of Concern for a sub-watershed. The CWE analysis does not address the effects of spills of hazardous substances that could occur. The possible effects from spills are discussed in section 4.5.8.3 of this EIS.

#### **4.3.3.4 *Watershed Impacts and Mitigation Common to All Alternatives***

The following impacts and mitigation measures are common to all alternatives.

##### **4.3.3.4.1 Surface Water Impacts and Mitigation**

All the alternatives, including Alternative 1: No Action/No New Leasing, could involve the operation of wells and fields. Potential impacts from long-term operation are primarily the potential for spills and releases, increased erosion, and stream sedimentation. Spills of hazardous materials is covered in Section 4.5.8.3. There also may be short-term high water demands, increased short-term erosion, and stream sedimentation due to new construction.

The potential impacts to surface water include:

- sediment loading of stream channels due to the earthwork associated with site construction;
- introduction of pollutants via spills and releases to surface water from:
  - *oil and produced water treatment, storage and handling facilities,*
  - *sanitary facilities;*
  - *oil and produced water transportation facilities (trucks, pipelines); and*
  - *oil, produced water, and drilling fluids*
- water used during the early development of a field could have a short-term adverse effect on local stream flow; and secondary effects on downstream water use due to changes in water quantity or quality described above.

Best Management Practices (BMPs) are applicable to controlling non-point source water pollution related to oil and gas development such as road construction. The use of the BMPs, as well as applicable laws and regulations as explained in Chapter 2 of this EIS, will control potential impacts to surface water to a level less than significant, except for cumulative watershed impacts. The laws and regulations, which have been designed to protect ground water quality, will also be followed and are expected to preserve ground water integrity in all cases. Additional site-specific mitigation measures, and management restraints consistent with lease

terms, can be developed as a result of the NEPA environmental analysis of individual project proposals.

#### **4.3.3.4.2 Ground Water Impacts Impacts and Mitigation**

All of the alternatives involve the potential for new construction of exploratory and development wells. Impacts from new construction on ground water resources include increased potential for spills and releases of undesirable or hazardous materials and for inter-aquifer transfer of fluids. Pollution (spill) hazards would be mitigated by adhering to the laws and regulations discussed earlier in Section 2.3.4.2.

Oil and gas drilling and well development can impact the ground water resource if standard mitigation measures are not applied. Drilling fluids and saline ground water or injection water could impact usable quality water aquifers if drilling muds are not used and wells are not properly cased and cemented. Prior to casing and during drilling, drilling muds are used to form a “mud cake” on the walls of the well bore to minimize loss of drilling fluids. Hydrostatic head prevents ground water from entering the well bore. Applying these and other mitigation measures listed in the following section should adequately protect the ground water resource for all the alternative leasing scenarios.

Surface activities from oil and gas fields can also impact the groundwater resource. Leaks from piping and storage tanks, and spills during petroleum transfer operations can reach the water table depending on the depth to water, the volume of petroleum leaked, and the permeability of surface material. Malfunctioning petroleum delivery equipment also can leak petroleum, which may reach the water table if the equipment is not repaired quickly. Industry standards of equipment, maintenance, and training are expected to be sufficient to minimize the impact on groundwater by oil and gas field operations.

The potential impacts to ground water include:

- transfer of pollutants to fresh water aquifers
  - *crude oil*
  - *produced saline water (brine)*
  - *polymers and viscosifiers*
  - *drilling fluids and muds*
- introduction of pollutants from spills and releases via exposed ground surfaces to subsurface aquifers from:
  - *oil and produced water treatment, storage and handling facilities,*
  - *sanitary facilities, and*
  - *oil and produced water transportation facilities (trucks, pipelines);*

Water used for road watering and drilling during the early development of a field could have a short-term adverse effect on local groundwater levels; and secondary adverse effects of each of the above on seeps and springs.

Best Management Practices (BMPs) are applicable to controlling non-point source water pollution related to oil and gas development such as road construction. The use of the BMPs, as well as



applicable laws and regulations as explained in Chapter 2 of this EIS, will control potential impacts to ground water to a level less than significant, except for cumulative watershed impacts. The laws and regulations, which have been designed to protect ground water quality, will also be followed and are expected to preserve ground water integrity in all cases. Additional site-specific mitigation measures, and management restraints consistent with lease terms, can be developed as a result of the NEPA environmental analysis of individual project proposals.

#### **4.3.3.4.3 Soils Impacts and Mitigation**

This impact analysis focuses on soil erosion, and uses the CWE analysis as an index of impacts that would potentially result from oil and gas exploration and/or developments.

Potential impacts to soils may occur as a result of oil and gas exploration and development subsequent to leasing. The impact analysis focuses on areas of erosive soils, unstable soils and hill slopes, and steep slopes. The degree of potential impacts to soils from oil and gas development depends on the types and locations of ground disturbance connected with the construction of facilities.

Three major types of land disturbance are associated with well development: gathering system pipelines, well pads, and roads. Construction activities result in direct removal of soil, clearing of vegetation that could cause an increase in erosion by wind and water, and reduced soil productivity as a result of vegetation removal. There could also be soil compaction, losses of soil and rock in areas of steep side-hill cuts, alteration or removal of topsoil resources, possible chemical contamination from oil and drilling fluids released during development, and activation or reactivation of unstable areas. These disturbances could potentially increase surface water runoff, accelerate erosion losses, interfere with drainage systems, and increase landslide hazards. Impacts to soils and geomorphology are site-specific. These impacts depend on:

- 1) *type and extent of the activity (roads, drilling, pipeline, etc.); and*
- 2) *soils and land capability of the affected site*

Soils impacts from drilling include disturbances from temporary road access plus soil disturbances and compaction at well sites. Should a discovery occur, potential soil impacts from oil and gas production include the impacts mentioned above plus the effects of pipeline and additional road construction.

During the construction phase, prior to implementation of reclamation efforts, some small soil losses would occur. Generally, impacts on soils would be low where reclamation, revegetation, and erosion control measures are successful. The potential for slope failure increases for major excavations requiring extensive cut-and-fill operations.

Excavation of pipeline trenches alters soil profiles, and can bring boulders and poor productivity subsoil to the surface, resulting in revegetation and rehabilitation difficulties. When routes are placed on gentle slopes, the amount of cuts and fills is reduced. Reduction in the amount of disturbance relates to the amount of soil erosion and loss of site productivity. Implementation of erosion control and revegetation measures reduces the amount of erosion. Under most situations,

some accelerated soil erosion and productivity losses are expected to occur until pipeline rights-of-way are stabilized (two to five years). This is considered a short-term impact.

Construction of new access roads and well pads compact and disturb the soil surface and have the greatest potential for adverse impacts on soils. Increased sediment can enter stream channels from Forest roads. Water quality is affected by the number and location of roads, and by road construction and maintenance activities. Proper planning, construction, and maintenance can substantially reduce watershed erosion from roads. Similarly, road construction and use has the potential to activate areas susceptible to land slides, slumping, and/or mass erosion. Depending on the type of binding materials used, exposure of bare soil could result in varying degrees of continued erosion losses. These impacts would be greatest where extensive side hill cuts are constructed. Additional impacts from access road construction include:

- 1) more area could become accessible to off-road vehicles and the soil disturbance caused by off-road travel;*
- 2) unsurfaced access roads may rut if they are used in wet weather or where constructed in wet areas; and*
- 3) construction and maintenance activities cause compaction that reduce infiltration rates on road surfaces, disrupt natural drainage by concentrating subsurface and overland flow, and channel runoff resulting in gully erosion.*

Impacts to soil do not include any oil pollutant that may be released during exploration and development. Pollution (spill) hazards would be mitigated by adhering to the laws and regulations discussed earlier in Section 2.3.4.2.

Soil losses can be reduced or minimized through the application of BMPs on a site-specific basis. The appropriate practices to be applied to individual projects would be identified during site-specific project level analysis. Examples of such practices include use of erosion curtains to protect drainages, surfacing roads, installing water bars and using appropriate erosion control techniques to control runoff, stockpiling of topsoil for reclamation and revegetation, and appropriate restoration techniques to control gullying and head-cutting. Other measures include appropriate engineering design of roads, well pads, and ancillary facilities; and avoidance of steep and/or unstable slopes and sensitive soils. Unneeded roads will be decommissioned and roadbeds and pads will be restored to natural conditions.

#### **4.3.3.4.4 Riparian, Wetland, and Floodplain Impacts and Mitigation**

Impacts to riparian, wetland and floodplain areas can be significant if changes in area extent or function occur. Secondary or indirect effects that occur to areas of adjacent wetlands, such as sedimentation from soil excavation, soil erosion, and other construction or drilling activities, would also be considered to be significant impacts if the normal functional value of riparian or wetland areas is reduced. The CWE analysis is used as an index of the potential impact of oil and gas development.

Principal direct effects to riparian, wetland and floodplain areas could occur primarily during clearing and earth-moving operations for construction of well pads, access roads, pipelines, and support facilities. However, as Best Management Practices and Standard Lease Terms will be applied, none of the proposed alternatives would allow uncontrolled activity in riparian, wetland and floodplain areas, and direct impacts to these areas are not expected to occur with any alternative. Furthermore, all riparian, wetland and floodplain areas that qualify as jurisdictional wetlands are regulated under Section 404 of the Clean Water Act and a Section 404 permit is required before any "dredge and fill" activities can occur in such areas.

Indirect secondary effects may result if site development occurs outside, but adjacent to, riparian, wetland and floodplain areas where lateral drainage is interrupted by road or well site construction, or when increased erosion affects water quality. Roads, well sites, pipelines, and other ancillary facility construction on side slopes above riparian and wetland areas all have the potential to cause sedimentation impacts. In order to provide an estimate of the magnitude of indirect effects from erosion impacts from areas adjacent to wetlands, a Cumulative Watershed Effects (CWE) analysis was made for each alternative.

Under certain conditions where occupancy is unavoidable (i.e., access to existing leaseholds or private mineral estates can only be obtained by crossing a riparian or wetland area), impacts to riparian, wetland, and floodplain areas could occur. As previously discussed, well sites and other facilities within a leased site can be moved up to 200 meters without the need for additional lease stipulations. This adjustment opportunity would allow for the avoidance of significant resources (i.e., riparian, wetland and floodplain areas) in the event that such sites are identified after lease areas have been designated. The discretionary authority to relocate any proposed activity 200 meters effectively provides for a 400-meter wide corridor centered on riparian strips. As a result, riparian, wetland and floodplain areas would only be subject to indirect impacts. These are addressed in the CWE analysis.

Many of the previously mentioned mitigation measures, which will be applied for the protection of water and soils, will also protect riparian, wetland and floodplain areas. Specific mitigation measures to reduce impacts to riparian, wetland and floodplain areas include: site and routing selection to avoid riparian and wetland areas; silt fences and other appropriate sediment control techniques, other BMPs to reduce sedimentation impacts, and reclamation of disturbed sites to reduce erosion. If impacts to wetland areas cannot be avoided, mitigation through replacement and enhancement will be necessary, as specified in Section 404 of the Clean Water Act. The management of wetlands and floodplains are subject to Executive Orders 11990 and 11988, respectively. The purpose of the executive orders is to avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and floodplains. Adherence to BMPs and the laws and regulations discussed earlier should provide adequate protection for riparian areas and wetlands. Significant adverse effects on these resources are not anticipated under any alternative.

#### ***4.3.3.5 Reasonably Foreseeable Future Impacts***

Wildfire is the primary future impact that would have significant consequences to watershed condition. Wildfires that denude a substantial part of a sub-basin could cause temporary, short-

term conditions that result in adverse CWE impacts. If such a wildfire were to occur within an oil and gas lease area, lessee watershed-impacting activities may need to be modified or restricted until the watershed can recover its vegetative growth and hydrologic function. In such instances, the Forest Service prepares a Burned Area Emergency Report (BAER), which develops rehabilitation measures to speed up recovery of hydrologic function and identify the manner and duration of restrictions on lessee activities. This was done following the Piru fire in the fall of 2003. The BAER report identified a need to install drainage structures and make other improvements on the roads within the Sespe oil fields, primarily the Squaw Flat Road. Additionally, the oil companies were instructed to improve drainage on roads and drill pads to better channel the increased runoff expected because of the denuded watershed. Work on this continues during the winter of 2005 because the January floods resulted in further damage to roads in the area.

#### **4.3.3.6 Cumulative Impacts**

As a result of past activities, the Sespe Oil Field was identified as having localized water quality problems or potential water quality problems in the Forest Plan EIS, Section 3.5.4. These are primarily due to soil erosion and sedimentation. Present and future oil and gas activities could add to these previous impacts if not sufficiently mitigated. The CWE analysis considers these existing impacts along with potential future impacts.

Considering the Forest Plan management direction, present and reasonably foreseeable non-oil-and-gas activities on the Forest are not expected to result in significant additional impacts to watershed resources since these activities would be mitigated with BMPs that, when applied properly, have provided watershed protection in the past.

Oil and gas or other development activities on private lands upstream from Forest lands could result in significant cumulative impacts. Such development requires environmental analysis and documentation under the California Environmental Quality Act (CEQA) when any state or local government entitlement is required. The Forest Service will participate in any such CEQA process as notified. The only condition under which significant impacts would occur is if sufficient mitigation is not applied. This would require publication of a “statement of overriding considerations” from the discretionary authority.

All six counties within the Forest area were queried regarding anticipated projects or plans that might result in cumulative impacts, and identified the following:

- Nacimiento Water Project (which passes under the Forest near San Luis Obispo);
- a concrete batch plant 1 mile east of Frazier Park;
- revision of development policies on agricultural lands within Santa Barbara County;
- and other possible future on-shore and offshore oil and gas development.

Regarding future possible offshore oil development, a Presidential moratorium is in effect until 2012, and several bills have been introduced in Congress that would prohibit additional oil development off California. However, there are 40 offshore tracts from near Santa Barbara to San Luis Obispo that have previously been leased but have not yet been developed. Although no one knows what future federal offshore leasing and drilling policies will be, from a watershed impact perspective, few, if any watershed impacts are anticipated. It is expected that the existing

oil and gas processing infrastructure will continue to be used to process any new off-shore production, and any new facilities to be built will have to minimize any watershed impacts identified during NEPA / CEQA review.

Regarding future possible on-shore oil and gas development, neither the County General Plan EIRs nor Santa Barbara County's Master Environmental Assessment for Onshore Oil and Gas Development (1991) identified any cumulative impacts regarding erosion or sedimentation. While it is possible that such development might have watershed impacts, without project details and specific environmental analysis any projection of their cumulative impacts would be speculative at this time. Santa Barbara County staff responding to the query (McCurdy) indicated that they expect that cumulative impacts, if any, would result from oil and gas processing and transporting facilities, and for hazardous materials generation. Potential impacts relating to these issues are discussed in the draft EIS on hazardous materials and spills.

Kern County found in its environmental Initial Study that any potential watershed impacts from the proposed concrete batch plant would be mitigated by the conditions required for plant development. The site is located at least 25 miles from the nearest area of high oil and gas potential, and is not in any of the watersheds that could be affected by oil and gas development analyzed under this study. Thus, no cumulative impacts are expected as a result of the batch plant and Forest oil and gas development, although there may be some residual watershed impacts in widely separated geographic areas.

According to the project draft EIR, watershed impacts associated with the proposed Nacimiento Water Project will be non-significant following preparation and implementation of a Stormwater Pollution Prevention Plan, scheduling trenching during the dry season, and implementation of a revegetation plan. Any residual soils/watershed impacts are expected by the County to be minimal. Furthermore, none of the HOGPAs are located within 100 miles of the Nacimiento Water Project. Thus, watershed impacts would not be cumulative on a specific geographic area basis. However, from a multi-county perspective, both projects could result in some separated residual watershed impacts.

According to the Draft EIR prepared by Santa Barbara County regarding the proposed Agricultural Cluster Development (ACD) and Residential Agricultural Unit (RAU) policies, allowing additional rural development is expected to result in "significant but mitigable environmental impacts" to soils and watershed resources. In particular, there will be additional soil erosion and sedimentation from all components of the proposed changes. These impacts will be reduced through mitigation measures GEO-1, 2, 5, and 6 (contained in that EIR), but it is expected that some residual watershed impacts will remain. Such impacts would be especially significant with the ACD policies, which, if applied to all eligible lands, could encompass up to 587,000 acres in Santa Barbara County. Some of the eligible lands are located near high oil and gas potential areas in the Cuyama Valley, west and southwest of Tepusquet Peak, and Figueroa Mountain. While the County may decide to proceed with these changes on a pilot basis, for a limited time and limited locations, it is possible that these rural development policy changes, combined with residual watershed impacts from activities in the South Cuyama HOGPA, could result in cumulative watershed impacts.

#### **4.3.3.7 Impacts of Alternative 1**

The existing oil and gas leases are not expected to contribute significant watershed impacts. Additional surface disturbances from existing leases are projected to occur in only one high oil and gas potential area, the South Cuyama area. The number of sub-basins with existing leases, by high oil and gas potential area, is provided in Table 4-10. Watershed locations and geographic extent are shown in the Watershed Stipulations map in the DEIS map packet.

##### **4.3.3.7.1 Mitigation Measures and Stipulations**

Application of Best Management Practices (BMPs) will be required as implementation of the Clean Water Act. Additional mitigation measures and management restraints will be developed on a site-by-site basis if a new lease were to be sold.

##### **4.3.3.7.2 Direct Impacts to Watershed Resources**

There are few short-term adverse effects expected from the activities in Alternative 1. Short-term effects would be controlled by application of Best Management Practices (BMPs), which are implementation of the Clean Water Act. BMPs provide for an erosion control plan that includes:

- *erosion control measures that would effectively control soil loss and sedimentation of streams during construction and maintenance of roads, well pads and fields;*
- *streamside management zones designated to control entry of equipment into drainages; and*
- *hazardous substance spill cleanup procedures to control water pollution from spills.*

Best Management Practices are incorporated into existing lease terms through Information Notices. A Spill Prevention Containment and Counter (SPCC) Measures Plan must be prepared if the total oil products on site exceed 660 gallons. Each Forest SPCC Plan must be compatible with appropriate County or State plans that also guide emergency responses to spills and discoveries of HAZMAT. The plan must provide a process to coordinate the various local, State, and Federal agencies that have emergency response capabilities, into a unified force that can effectively react to actual or threatened releases. (Refer to Section 4.5.8.3 for a detailed discussion and examples of SPCC plans.)

##### **4.3.3.7.3 Indirect Impacts to Watershed Resources**

Cumulative Watershed Effects analysis is used to evaluate the indirect impact and combines all the watershed resources into a single risk rating. Ratings for adverse CWE were determined to be low for both short-term and long-term periods. See the following section.

#### 4.3.3.7.4 Cumulative Impacts to Watershed Resources

Cumulative Watershed Effects were analyzed for impacts of projected short-term and long-term disturbance caused by oil and gas development in existing leases coupled with past, present, and reasonably foreseeable activities. Summary information is provided in Table 4-10. The risk of negative CWE has been provided as a range in columns 5 and 6 of the table. The range extends from the risk if projected development were to be equally distributed between all sub-basins to the risk if all projected development were to occur in only one sub-basin. Detailed information by sub-basin is provided in the Watershed Resources Background Report.

All sub-basins with projected surface disturbing activities have low risk for adverse CWE in their current and projected leasing condition. Sub-watershed 702.04 in the San Cayetano HOGPA and sub-watershed 701.48 in the Sespe HOGPA have existing CWEs above 75% of the threshold of concern and thus are considered at risk. However, the projected wells (1 in San Cayetano and 5 in Sespe HOGPA) are projected to occur from existing well pads and not result in additional surface disturbance. Two sub-watersheds in the Figueroa Mountain HOGPA also are at risk of adverse CWE in their existing condition. However, there are no existing leases within the Figueroa Mountain HOGPA and thus no additional disturbance as a result of Alternative 1.

TABLE 4-10: ALTERNATIVE 1 CONDITIONS OF SUB-BASINS - BASINS WITH EXISTING LEASES BY HIGH OIL AND GAS POTENTIAL AREA

High Oil and Gas Potential Area	Projected Disturbance Short/Long-term (acres)	Sub-basins in Areas of Projected Oil & Gas Disturbance	Watershed Sensitivity	Short-term Risk for Adverse CWE	Long-term Risk for Adverse CWE	Sub-basins Above 75% TOC
Piedra Blanca	0.0	None				
San Cayetano**	0.0	None				702.04*
Sespe**	0.0	None				701.48*
Rincon Creek	0.0	None				
South Cuyama**	3.0/2.0	11	11-Very Low	11- Low – Low	11- Low - Low	None
La Brea Cyn.	0.0	None				
Figueroa Mtn.	0.0	None				314.40010* 314.40012*
Lopez Canyon	0.0	None				
Monroe Swell	0.0	None				

\* Sub-basins with potential risk of adverse CWE impacts in their current condition.

\*\* Contains existing leased lands

#### 4.3.3.7.5 Short-term/Long-term & Irreversible/Irretrievable Tradeoffs

Construction of roads, drilling pads and collection/distribution lines will have both short and long-term tradeoffs equivalent to the acres projected for the specific high oil and gas potential area. This will result in a loss of vegetation growth due to clearing, grading and future maintenance of well pads and the transportation system on 3 acres in the short term and 2 acres in the long term. This means of the 3 acres disturbed, 1 acre is irretrievably lost in the short term but would be reclaimed and 2 acres are irreversibly lost over the long-term life of the project.

#### **4.3.3.7.6 Significant Unavoidable Impacts**

There are no significant unavoidable impacts expected to watershed resources from the reasonably foreseeable additional development of existing leases.

#### **4.3.3.7.7 Forest Plan Consistency Discussion**

The projected reasonably foreseeable additional development of existing leases in Alternative 1 is consistent with the Forest Plan watershed direction.

#### **4.3.3.8 *Impacts of Alternative 2***

Alternative 2 emphasizes oil and gas development and has the highest impact potential on soil and water resources of all the alternatives. Oil and gas development will have 163.3 acres of short-term disturbance and 70.1 acres of long-term disturbance. Road construction and use associated with Alternative 2 has the potential to activate areas susceptible to land slides, slumping, and/or mass erosion. With proper engineering design and location, road impacts to sensitive soils and geologic hazards can be minimized. However alternative 2 is limited to the BLM Standard Lease Terms, which only allow moving proposed facilities 200 meters or delaying activities 60 days. Overall, the chance for significant soil impacts to occur is higher in areas of limited reclamation potential (e.g., soils with very high erosion hazard, steep slopes, unstable soils, landslide zones). Such sensitive areas require avoidance (e.g. No Lease or a NSO stipulation, as is applied in the other action alternatives).

##### **4.3.3.8.1 Mitigation Measures and Stipulations**

Best Management Practices would be applied to all leasing activities. No additional lease stipulation measures would be added to BLM Standard Lease Terms for Alternative 2. Mitigation under BLM Standard Lease Terms includes moving proposed facilities up to 200 meters, or delaying operations by up to 60 days. Lessees will also be informed regarding environmental requirements and other applicable laws and inclusion of BMPs through Information Notices.

##### **4.3.3.8.2 Direct Impacts to Watershed Resources**

Impacts to soils, water, and riparian resources as discussed in sections 4.3.3.4 could occur under Alternative 2 depending on the location of oil and gas exploration and development activities. The map entitled *Watershed Stipulations* located in the map pocket displays the location of sensitive watershed areas with very high erosion hazards, steep slopes, unstable landscapes and the Casitas Reservoir Watershed.

##### **4.3.3.8.3 Indirect Impacts to Watershed Resources**

Cumulative Watershed Effects (CWE) analysis is used to evaluate the indirect impact and combines all the watershed resources into a single risk rating. See the following section.



#### **4.3.3.8.4 Cumulative Impacts to Watershed Resources**

Cumulative Watershed Effects (CWE) was analyzed for impacts of projected short-term and long-term disturbance caused by oil and gas development under the Alternative 2 leasing scenario. Table 4-11 provides a summary of risk by development area. More detailed discussion of impacts, by sub-basins, is given in the Watershed Background Report and its Appendix Table VI gives the range of risk of adverse CWE occurring in each sub-basin.

Overall, 15 sub-basins have a high or very high risk for long-term (27 short-term) adverse CWE when the oil and gas development activities are concentrated in one of the sub-basins. Four of the sub-basins, as mentioned under alternative 1, are over 75 percent of TOC under current conditions and are included in these numbers. However, there is only a small increase in the percent ERA when the projected oil and gas development is prorated equally to each of the sub-basins, compared to current conditions. Adverse CWE can be avoided by dispersing oil and gas development proportionately among sub-basins except for the 4 sub-basins already at risk in their existing condition.

Sub-watershed 702.04 in the San Cayetano HOGPA and sub-watershed 701.48 in the Sespe HOGPA have existing CWEs above 75% of the threshold of concern and thus are considered at risk. However, the projected wells (1 in San Cayetano and 5 in Sespe HOGPA) are projected to occur from existing well pads and not result in additional surface disturbance.

Drainages downstream from sub-basins listed in column 6, Table 4-11 could receive indirect impacts that could be compounded by off-Forest activities in the sub-basin watersheds. There could be increased channel flows that could cause channel erosion and sedimentation.

#### **4.3.3.8.5 Short-term/Long-term & Irreversible/Irretrievable Tradeoffs**

Construction of roads, drilling pads and collection/distribution lines will have both short and long-term tradeoffs equivalent to the acres projected for the specific high oil and gas potential area. This will result in a loss of vegetation growth due to clearing, grading and future maintenance of well pads and the transportation system on 163.3 acres in the short term and 70.1 acres in the long term. This means of the 163.3 acres disturbed, 93.2 acres are irretrievably lost in the short term but would be reclaimed and 70.1 acres are irreversibly lost over the long-term life of the project.

TABLE 4-11: ALTERNATIVE 2 WATERSHED CONDITIONS OF SUB-BASINS – RISK OF ADVERSE CWE BY HIGH OIL AND GAS POTENTIAL AREAS

Oil and Gas Development Area	Project Disturbance Short/Long-term (ac.)	No. of Sub-basins in Area	Short-term Risk for Negative CWE Impacts # of Sub-basins	Long-term Risk for Negative CWE Impacts, # of Sub-basins	Sub-basins Above 75% TOC
Piedra Blanca	22.0/12.0	9	8-Low to Low 1- Low to Very High	8-Low to Low 1- Low to Very High	701.13
San Cayetano	38.4/16.0	22	6-Low to Low 1-Low to Moderate 5-Low to High 8- Low to Very High 1-Moderate to Very High 1-Very High to Very High	9-Low to Low 6-Low to Moderate 2-Low to High 3- Low to Very High 1-Moderate to High 1-Very High to Very High	402.31010** 403.21000 701.39** 702.03 702.04* 702.05 702.07 702.09** 702.11 702.13 702.14** 703.02** 703.05** 703.06 703.07
Sespe	35.2/12.1	18	8-Low to Low 2-Low to Moderate 2-Low to High 4-Low to Very High 1- Moderate to Very High 1- High to Very High	11-Low to Low 2-Low to Moderate 1-Low to High 2-Low to Very High 1- Moderate to High 1- High to Very High	701.44** 701.47 701.48* 702.01** 704.42 704.43 705.02** 705.11
Rincon Creek	6.0/3.0	8	8-Low to Low	8-Low to Low	None
South Cuyama	35.3/14.0	21	18-Low to Low 1-Low to Moderate 2-Moderate to Moderate	18-Low to Low 1-Low to Moderate 2-Moderate to Moderate	None
La Brea Canyon	8.1/4.0	5	5-Low to Low	5-Low to Low	None
Figueroa Mountain	6.1/3.0	11	9-Low to Low 2-Very High to Very High	9-Low to Low 2-Very High to Very High	314.40010* 314.40012*
Lopez Canyon	6.1/3.0	4	3-Low to Low 1-Low to Very High	3-Low to Low 1-Low to Very High	310.31014
Monroe Swell	6.1/3.0	3	3-Low to Low	3 Low to Low	None
* Sub-basins with potential risk of adverse CWE impacts in their current condition.					
** Sub-basins with short-term CWE impacts only, all others have potential for both short and long-term adverse CWE impacts					

#### **4.3.3.8.6 Significant Unavoidable Impacts**

Fifteen sub-basins have potential for significant long-term impacts if all the oil and gas development for the area were to occur in just one sub-basin. This potential impact can be avoided by dispersing development proportionately between sub-basins except for 4 sub-basins.

#### **4.3.3.8.7 Forest Plan Consistency Discussion**

Alternative 2 is not consistent with Forest Plan direction. Impacts to soils, unstable areas and riparian areas are not sufficiently mitigated and could result in long-term adverse cumulative watershed effects in fifteen sub-basins (column 6, Table 4-11) if all oil and gas development were to occur in one sub-basin.

#### **4.3.3.9 *Impacts of Alternative 3***

In Alternative 3, the No Surface Occupancy (NSO) stipulation reduces impacts to watershed resources as compared to the impacts estimated for Alternative 2. In addition, the Limited Surface Use (LSU) stipulation requires reclamation in watersheds already impacted. Alternative 3 has less projected disturbance from oil and gas development (46.5 short-term and 33.0 long-term) than does Alternative 2 (163.3 short-term and 70.1 long-term). The NSO stipulations relative to watershed protection are shown in Table 4.12. When NSO is applied, the area of sensitive conditions open for oil and gas development is reduced. Table 4-12 and Appendix Table VII, Watershed Background Report, display the results of applying NSO stipulations to sub-basins. The Watershed Stipulations map in the DEIS map pocket show the locations where each geographically locatable stipulation applies.

#### **4.3.3.9.1 Mitigation Measures and Stipulations**

Stipulations for Alternative 3 are given in Table 4-12. The *Watershed Stipulation* map in the DEIS map pocket displays the geographic distribution of those NSO stipulations.

Four stipulations deal with No Surface Occupancy (NSO) that is tied to Forest Plan direction. Stipulations WS 1 to WS 3 apply Forest-wide, and are applied on extremely unstable areas, very high erosion hazard soils, and slopes over 50 percent. These stipulations are intended to control excessive surface disturbance of a watershed that could experience significant soil and water quality deterioration. The NSO requirement removes highly sensitive land areas from oil and gas development.

Stipulation WS 4 applies to Management Area 39, which is specific to controlling land disturbance activities in the watersheds above Casitas Reservoir. The NSO requirement removes all lands in the watershed from oil and gas development.

TABLE 4-12: WATERSHED STIPULATIONS TO BE APPLIED TO ALTERNATIVE 2 TO GENERATE ALTERNATIVE 3

Element/ Stip. Name	Forest Plan Direction	Mgmt. Areas	GIS Attribute Data	LSU	NSO
Alt 3 WS 1	4.3.2.3 Seismic and Geologic Hazards - 2. Land disturbing actions will be avoided or conducted in a manner to preclude acceleration of active landslides or activation of dormant landslides.	All	Slope Sensitivity Map  1/ SS=5, Very High or SS=4, High		NSO on extremely unstable areas on slopes over 20 percent and NSO for active landslides.
Alt 3 WS 2	4.3.4.5 Watershed - 1. Soil productivity and water quality will be maintained ... 3. Excessive surface disturbance of watersheds resulting in on-site and off-site soil and water deterioration will be precluded by conducting cumulative watershed impact assessments on Order III and greater drainage ...	All	Soils Map  Soils with very high EH.		NSO on soils with very high erosion hazard ratings.
Alt 3 WS 3	4.3.4.5 Watershed- 1. Soil productivity and water quality will be maintained- . . . . . 3. Excessive surface disturbance of watersheds resulting in on-site and off-site soil and water deterioration will be precluded by conducting cumulative watershed impact assessments on Order III and greater drainage ...	All	Soils Map  Soils with very high EH.		NSO for areas that have slopes over 50%.
Alt 3 WS 4	Any recommended energy leases will include a "no surface occupancy" stipulation in Casitas Reservoir watershed.	39	Watershed Basin Map  402.20030 402.20031 402.20032		NSO within Casitas Reservoir Watershed.
Alt 3 WS 5	"Watershed Inventory & Needs (WIN) inventory. The Forest Service will conduct the inventory. When the inventory is completed, WIN projects will be identified and a prioritized schedule of work will be established with the lessee. The lessee will do the work identified by the WIN inventory or provide funds for its completion."	1	Watershed Basin Map  701.44; 701.45; 701.46; 701.48; 702.01; 702.02; 702.07	Conduct WIN inventory and projects	
Alt 3 WS 6	Watersheds that would have a high risk of adverse CWE.		Watershed Basin Map  702.04; 702.07; 701.44; 701.47; 701.48; 705.11; 704.42; 704.43;		NSO within these sub-watersheds

Stipulation WS 5 is specific to Forest Plan direction in Management Area 1. This stipulation is applied to correct soil and water quality problems that may have been caused by previous land use and development. The Sespe Oil Field was identified as having water quality problems or potential water quality problems in the Forest Plan EIS, Section 3.4.5. Actions taken under this stipulation are to implement watershed improvement projects to correct and restore water quality problems identified in a Watershed Improvement Needs (WIN) inventory. The lessee may be required to conduct the inventory with watershed specialists that meet Forest Service approval.

When the WIN inventory is completed, WIN projects will be identified and a schedule for priority of work will be established with the lease.

Stipulation WS 6 applies NSO stipulations to sub-basins that are still projected to have high risk of adverse CWE after other watershed stipulations are implemented. Since the DEIS was released the CWE analysis was updated to reflect new data on grazing in the watersheds. As a result, several watersheds were still projected to be at risk of adverse CWE after watershed stipulations 1 through 5 were applied. This stipulation adds NSO to those watersheds.

#### **4.3.3.9.2 Direct Impacts to Watershed Resources**

The NSO stipulations remove the direct effect of oil and gas development on sensitive watershed conditions by prohibiting surface occupancy in sensitive areas. Table 4.13 presents the amount of area remaining that is open to management when the NSO is applied. There are few short or long-term direct adverse effects expected in non-sensitive areas from the activities projected to occur in Alternative 3. Short-term effects to non-sensitive areas would be controlled by:

1. The application of Best Management Practices (Appendix Table IV), which provides for an erosion control plan that would include:
  - *measures that would effectively control soil loss and sedimentation of streams during construction and maintenance of roads, well pads and fields;*
  - *streamside management zones designated to control entry of equipment from drainages; and*
  - *hazardous substance spill cleanup procedures to control water pollution from spills.*
2. The No Surface Occupancy stipulations that are applied for Alternative 3 significantly reduce the risk of adverse impact to water quality and riparian/wetlands/ floodplain, or loss of soil productivity, compared to Alternative 2. These stipulations also protect watersheds used for municipal water supplies.
3. The LSU stipulations prevent over concentration of development in any one sub-basin and provide for remediation measures to mitigate existing adverse effects to watersheds.

#### **4.3.3.9.3 Indirect Impacts to Watershed Resources**

Cumulative Watershed Effects analysis is used to evaluate indirect impacts, and combines all the watershed resources into a single risk rating. Ratings for adverse CWE are given in Table 4-14.

#### **4.3.3.9.4 Cumulative Impacts to Watershed Resources**

Cumulative Watershed Effects were analyzed for impacts of projected short-term and long-term disturbance caused by oil and gas development in existing leases assuming application of NSO stipulations WS 1 through WS 4. Table 4-14 displays the results of the CWE analysis. The risk rating is provided as a range: left to right; when oil and gas development is distributed proportionately between sub-basins (left value) to if development is concentrated in any one of the sub-basins, (right value). If the risk ratings for adverse CWE were high or very high (over 75 percent of TOC), there would be concern that the development will have adverse effects on soil and water quality. If the rating is of low or moderate risk, water quality problems are not

expected to occur. The last column indicates sub-basin that still would be at risk with NSO stipulations WS 1 to WS 4 applied. Since these sub-basins are still at risk they are also given the NSO stipulation (WS 5) to avoid such impacts.

TABLE 4-13: REDUCTION IN AREA OPEN TO MANAGEMENT WHEN WATERSHED NSO STIPULATIONS ARE APPLIED

High Oil and Gas Potential Area	Number of Sub-basins in Area	Alternative 2 Area Open to Management (acres)	Alternatives 3 Area of WS NSO Stipulations (acres)	Area Open After NSO is Removed (acres)	Area Reduced by NSO (%)
Piedra Blanca	9	32,072	10,548	21,488	33
San Cayetano	22	30,311	19,170	11,141	63
Sespe	18	19,886	9,140	10,747	46
Rincon Creek	8	42,627	21,081	21,546	49
South Cuyama	21	112,344	38,809	73,535	35
La Brea Canyon	5	20,928	5,823	15,105	28
Figueroa Mountain	11	33,863	14,840	19,203	44
Lopez Canyon	4	5,268	1,381	3,887	36
Monroe Swell	3	7,017	1,638	5,466	23

#### 4.3.3.9.5 Summary of CWE Analysis

NSO stipulations were applied to areas of steep slopes, unstable soils, high erosion potential and the Lake Casitas Watershed. CWE analysis indicated 8 sub-basins were still at risk for adverse cumulative watershed effects even with these NSO stipulations applied. These 8 sub-basin were then also identified for NSO stipulation. As a result of these NSO stipulations, no adverse cumulative watershed impacts are projected for Alternative 3.

#### 4.3.3.9.6 Direct & Indirect Impacts

Direct and indirect impacts that could occur in the sub-basins with high and very high risk of adverse CWE are mitigated by the NSO stipulations. As a result, loss of soil productivity due to erosion and landslides; water pollution from sediment; and loss of riparian/floodplain/wetland productivity due to sediment aggradation, flooding and channel erosion will be below the level of significance.

TABLE 4-14: WATERSHED CONDITIONS OF SUB-BASINS FOR ALTERNATIVES 3 - RISK OF ADVERSE CWE BY HIGH OIL AND GAS POTENTIAL AREAS

Oil and Gas Development Area	Projected Disturbance (acres)	Number of Sub-basins in Area	Short-term Risk for Negative CWE Impacts # of Sub-basins	Long-term Risk for Negative CWE Impacts, # of Sub-basins	Sub-basins Above 75% TOC
Piedra Blanca	0.0				
San Cayetano	3.0/3.0	22	17-Low to Low 3-Low to Moderate 1-Low to Very High 1-Very High to Very High	18-Low to Low 3-Low to Moderate 1-Low to Very High 1-Very High to Very High	702.04* 702.07
Sespe	16.0/10.0	18	11-Low to Low 1-Low to Moderate 4-Low to Very High 1-Moderate to High 1-High to Very High	11-Low to Low 3-Low to Moderate 2-Low to Very High 1-Moderate to Moderate 1-High to Very High	701.44** 701.47 701.48* 704.42 704.43** 705.11**
Rincon Creek	3.0/3.0	8	8-Low to Low	8-Low to Low	None
South Cuyama	21.5/14.0	21	19-Low to Low 2-Moderate to Moderate	19-Low to Low 2-Moderate to Moderate	None
La Brea Cyn.	3.0/3.0	5	5-Low to Low	5-Low to Low	None
Figuroa Mtn.	0.0				
Lopez Canyon	0.0				
Monroe Swell	0.0				
* Sub-basins with potential risk of adverse CWE impacts in their current condition.					
** Sub-basins with short-term CWE impacts only, all others have potential for both short and long-term adverse CWE impacts					

#### 4.3.3.9.7 Short-term/Long-term & Irreversible/Irretrievable Tradeoffs

Construction of roads, drilling pads and collection/distribution lines will have both short and long-term tradeoffs equivalent to the acres projected for the specific high oil and gas potential area. This will result in a loss of vegetation growth due to clearing, grading and future maintenance of well pads and the transportation system on 45 acres in the short term and 31.5 acres in the long term. This means of the 45 acres disturbed, 13.5 acres are irretrievably lost in the short term but would be reclaimed and 31.5 acres are irreversibly lost over the long-term life of the project.

#### 4.3.3.9.8 Significant Unavoidable Impacts

Any new leasing under Alternative 3 would not result in significant unavoidable impacts to watershed resources.

#### **4.3.3.9.9 Forest Plan Consistency Discussion**

Any new leasing under Alternative 3 would be consistent with the watershed direction in the Forest Plan. Impacts to soils, unstable areas and riparian areas are sufficiently mitigated and would not result in adverse cumulative watershed effects.

#### **4.3.3.10 *Impacts of Alternative 4***

##### **4.3.3.10.1 Direct and Indirect Impacts**

Adding additional stipulations to Alternative 3 generates Alternative 4. Also, Alternative 3 stipulations apply to Alternative 4. Since there are no significant watershed impacts projected for Alternative 3 and Alternative 3 meets the Forest Plan direction, there is no need for additional watershed stipulations. However, stipulations are added in Alternative 4 for other resource concerns (biology, scenery and recreation). The effect of these added stipulations is to further reduce the lands available for surface occupancy and reduce the amount of development projected in the RFD. Consequently, the watershed impacts are further reduced from those indicated for Alternative 3, where they are already below the level of significance, and consistent with Forest Plan watershed direction. Direct, indirect, short-term, long-term and cumulative impacts of Alternative 4 are projected to be less than Alternative 3 and below the level of significance.

##### **4.3.3.10.2 Short-term/Long-term & Irreversible/Irretrievable Tradeoffs**

Construction of roads, drilling pads and collection/distribution lines will have both short and long-term tradeoffs equivalent to the acres projected for the specific high oil and gas potential area. This will result in a loss of vegetation growth due to clearing, grading and future maintenance of well pads and the transportation system on 45 acres in the short term and 31.5 acres in the long term. This means of the 43 acres disturbed, 13.5 acres are irretrievably lost in the short term but would be reclaimed and 31.5 acres are irreversible lost over the long term life of the project.

##### **4.3.3.10.3 Significant Unavoidable Impacts**

No significant unavoidable watershed impacts are expected from the oil and gas development projected for Alternative 4.

##### **4.3.3.10.4 Forest Plan Consistency Discussion**

As a result of the mitigating stipulations Alternative 4 is consistent with Forest Plan direction.

#### **4.3.3.11 *Impacts of Alternative 4a***

Alternative 4a further reduces the area where surface occupancy is allowed in Alternative 4 by applying the NSO stipulation to all Inventoried Roadless Areas (IRA's). Consequently the



already less than significant watershed impacts in Alternative 4 are further reduced and the alternative is consistent with the Forest Plan.

#### ***4.3.3.12 Impacts of Alternative 5***

Within HOGPAs, Alternative 5 utilizes Alternative 4 biological stipulations; Alternative 3 stipulations for the other resources are used. Land within the lease study area that would otherwise be under a NSO stipulation and cannot be accessed by directional drilling is not offered for lease in Alternative 5. The result is that alternatives 5 and 3 have the same projected RFD scenarios. Thus, the projected environmental consequences for Alternative 5 are also the same as for Alternative 3.

#### ***4.3.3.13 Impacts of Alternative 5a***

The difference between Alternative 5 and Alternative 5a is that the Inventoried Roadless Areas are under a No Surface Occupancy (NSO) stipulation in Alternative 5a. Those portions of the IRAs that cannot be accessed by directional drilling are not offered for lease, similar to Alternative 5.

The differences between Alternatives 4 and 5 are almost all negated in comparing Alternatives 4a and 5a, due to the amount of IRAs. The two differences between alternatives 4 and 5 are:

- *Alternative 3 stipulations (except biological) in HOGPAs are applied in Alternative 5 and*
- *inaccessible lands are not leased in Alternative 5.*

#### ***4.3.3.14 Impacts of the New Preferred Alternative***

The New Preferred Alternative follows the Alternative 5a leasing scenario for the South Cuyama, San Cayetano, and Sespe HOGPAs and the Alternative 1 scenario (no new leasing) for the rest of the study area. As a result there are even less lands available for leasing and less oil and gas activities projected than Alternative 3. This results in fewer impacts than Alternative 3. Since Alternative 3 impacts were already below the significance threshold and met the Forest Plan watershed direction so does the New Preferred Alternative.

Consequently, the projected watershed impacts for alternatives 3, 4, 4a, 5 and 5a do not reach the threshold of significance and are in compliance with the Forest Plan direction for watersheds.

## ***4.4 BIOLOGICAL ENVIRONMENT***

### **4.4.1 Introduction**

This chapter addresses potential environmental consequences to the wildlife and fish, anadromous fisheries, and vegetation resources that could occur from the alternative scenarios being considered for future oil and gas leasing on LPNF.

Oil and gas exploration and development generally progresses through three operational phases: (1) preliminary exploration, (2) exploratory drilling, and (3) development, production and abandonment. The preliminary investigations often require only “casual” surface presence, but off-road vehicle travel and some access road construction can occur, particularly if seismic reflection or geophysical surveys are used in exploration.

Potential direct impacts of oil and gas development on biological resources are greatest during exploratory drilling and oil/gas field development phases. These phases can last up to 50 years or more. Direct surface disturbance to vegetation and topsoil results from the construction of access roads, well pads and associated features. Typically an individual well pad requires the clearing of vegetation and topsoil and an access road. Pipelines must be constructed in a linear fashion requiring the excavation of 10- to 15-foot-wide strip that is backfilled and revegetated shortly after construction. The well pads and other facilities would not have the topsoil replaced and be revegetated until well abandonment (i.e., for up to 50 years or more from the start of development).

#### **4.4.2 Potential Impacts to Wildlife**

Further development of oil and gas resources on LPNF could result in impacts to wildlife. Impacts could result from human activity, noise, vehicular travel, vegetative removal/disturbance and pollution of air and water. Impacts that do not permanently alter habitat condition may be lessened by time, especially in areas where minimum maintenance and repair are necessary. Periodic visits to service and maintain equipment may result in temporary increases in impacts.

Nearly all National Forest land-use actions have biological implications. The effects of these actions may be positive, negative, or both, depending upon the species or species group being analyzed. In addition to ESA protection of listed species and protection under other federal laws and regulations, the LPNF Forest Plan provides for the maintenance of the viability of all native and desired non-native species. Given the ESA and Forest Plan management direction, which includes direction given in the Riparian Conservation Strategy, present and reasonably foreseeable non-oil-and-gas activities on the Forest are not expected to result in additional cumulatively significant impacts to biological resources.

##### **4.4.2.1 *Direct Impacts***

Direct impacts are those that result in changes to population levels through mortality, habitat destruction or degradation of habitat quality. Examples of direct impacts are collision with motor vehicles; collision with structures and facilities; and entrapment in sumps and/or ponds.

Introduction of construction equipment and vehicular travel into previously unroaded areas, or increasing these activities in developed areas, increases the vulnerability of wildlife to death or injury by crushing and/or collision. Migrating and resident birds are known to collide with structures that interfere with their flight paths. Colliding with power lines has killed California condors, eagles and other raptors. Waterfowl and neo-tropical migrants are often killed when striking towers and tall structures at night or in heavy fog. Open sumps and petroleum spills have been documented as causes of direct mortality to mammals, birds and amphibians and

reptiles. Often, these appear like pools of water, attracting animals for drinking, feeding or resting purposes. Animals coming in contact with petroleum are often trapped and succumb.

#### **4.4.2.2 Indirect Impacts**

Indirect impacts are impacts resulting from actions that degrade the normal physical environment potentially leading to reduction or loss of individuals over the long-term. Examples of indirect effects are primarily from habitat loss and/or degradation due to alteration (pollution) of natural habitats and increased human activity.

Access roads, drill pads, pump sites, storage tanks, transmission lines and pipelines all reduce the habitat available for wildlife use. A certain amount of these activities can be mitigated through site restoration and the planting of vegetation useful to wildlife species.

Increased vehicular traffic and human presence can disturb species adjacent to and within a certain distance of roads, drill sites and other areas frequented by workers or noise producing equipment. Pipelines placed above ground, especially in multiple bundles, pose an obstruction to certain wildlife species, potentially preventing them from crossing.

Pollution impacts can result from siltation of waterways, petroleum spills, and the release of dust and emissions into the air. Spills of petroleum compounds may affect wildlife through contact and/or ingestion and by reducing mobility through the coating of feathers or becoming mired in pools of oil, resulting in exposure and starvation. Indirectly, spillage of petroleum products can render vegetation unpalatable for ingestion; reduce or eliminate soil productivity for sensitive and forage plants; and reduce palatability of water.

Most of the potential effects of siltation and pollution of waterways can be prevented by the application of BMPs and the various laws and regulations designed to control sedimentation and pollution which were discussed previously in the section on watershed resources. BMPs (see Appendix E in this EIS) are applicable to controlling non-point source water pollution related to oil and gas development such as road construction. Use of the BMPs, as well as applicable laws and regulations as explained in Sections 2.3.4.1.6.6 and 2.3.4.2 of this EIS, will control potential impacts to waterways to a level less than significant.

Oil and gas exploration and development and associated roads have the potential to affect wildlife movement corridors and contribute to fragmentation. However, wildlife habitats potentially affected by oil and gas development on the LPNF are primarily located in chaparral, consisting of large blocks of contiguous dense vegetation. Here, where recent fire prevention has resulted in even-age contiguous stands, occasional fragmentation would increase diversity. In some cases new roads may even provide additional movement corridors, which could allow passage of wildlife through otherwise impenetrable areas.

Wildlife movement corridors are also located in riparian zones and intermittent stream channels where passage is not restricted by the dense vegetation. Riparian areas will be fully protected and, thus, the movement corridors through these areas will remain intact.

Most wildlife habitat on LPNF is connected with one or more vegetation types. Tables 4-16, 4-18, 4-20, 4-23, 4-26, 4-28, 4-30, and 4-32 distribute the RFD-estimated acres of maximum disturbance (before rehabilitation) in each HOGPA by vegetation type for the various alternative leasing scenarios. The exact locations of future oil and gas activities within the HOGPAs are unknown at this time. Consequently, it is not possible to know what vegetation type(s) oil and gas development activities would occur in any HOGPA with more than one vegetation type. Estimates of the acreage disturbed for each vegetative type within each HOGPA were made by allocating the RFD estimate of disturbed area to vegetation types by the same percent as they occur in the HOGPA (or the existing lease areas within HOGPAs in the case of Alternative 1). Where applicable, the acres of vegetation potentially disturbed for each alternative was used to predict the effect of indirect habitat loss on many species of wildlife and fish. (The process used is explained in the following section.)

#### **4.4.3 TEP Species, Sensitive Species, and Management Indicator Species**

A quantitative estimate was made of the effect of oil and gas activities on threatened and endangered species as well as sensitive species and management indicator species. To provide for a comparable analysis, species habitat acreages were derived using one or more of three criteria. First, certain species have fairly definitive occupancy data that has been developed through extensive surveys. If available, this data was utilized. Second, many species have specific habitat relationships. In these cases, vegetative type or a combination of types was used as a surrogate for species occupancy. This allowed bias in favor of a species whether or not it was known to occur in the area and irrespective of the patch sizes and their juxtaposition. Third, certain species may have varied habitat preferences but have very definitive ranges. In these cases analysis was only conducted within the known range of these species. Table 4-15 indicates the habitat model used to determine impacts by species.

Due to the uncertainty of exact oil and gas exploration and development locations, activity actions and levels, impacts to most wildlife species can only be assessed through potential effects to occupied and/or suitable habitats. Therefore, in some cases, impacts were projected by modeling of the effects of potential actions on vegetative and hydrologic regimes suitable for occupancy by the listed and sensitive species. From this data, gross acreages of potential habitat alteration were generated. However, the actual effect on a given species, if any can only be determined through site-specific analysis once individual project plans are received. It must be understood that the initial impact assessment data presented in this analysis does not determine actual species presence, define suitable habitat specifics such as micro-climatic requirements, assess interspersions of various habitat types necessary for occupancy by many species, pinpoint project location with respect to human activity, or determine patch size.

In other cases, specifically those where known species habitat occupancy data is available, cataloged, and mapped, these data have been used in place of vegetative type. Such data provide a more refined analysis than that of other species where gross habitat based on suitable vegetative types is used.

Site-specific data availability for biological species in the project area ranges from fairly definitive (e.g. least Bell's vireo) to speculative (e.g. blunt-nosed leopard lizard). Therefore,

comparison of assessment data at this level of analysis is quite broad and based on professional judgment of biologists familiar with the species and its habitat requirements.

#### **4.4.4 Impact Assessment for Fishery Resources and Aquatic Wildlife**

Effects to both anadromous and fresh-water resident fish species are, for the most part, identical. Therefore, while review and permitting of effects to anadromous fish is the responsibility of NOAA Fisheries and that of fresh-water resident species the responsibility of USFWS, the general assessment of impacts will consider them together. The following discussion will also apply to potential effects to aquatic wildlife other than fish.

##### **4.4.4.1 *Direct Impacts***

Accidental spillage of petroleum products or other toxic materials can directly kill fish. Eggs may be smothered or killed, and adults killed. The BLM Standard Lease Terms give the government authority to move proposed activities up to 200 meters (656 feet). This is a sufficient distance to avoid all streams and riparian habitats when locating oil and gas activities. However, new access roads may need to cross streams and trucking of oil and other toxic materials may be on routes that cross or parallel rivers and streams. Rivers and streams are by definition in drainages. Any spills could flow into these drainages.

##### **4.4.4.2 *Indirect Impacts***

Indirect impacts to fisheries can result from pollution, barriers to migration and indirect habitat loss.

###### **4.4.4.2.1 Pollution**

Oil and gas exploration and development requires the use of a variety of chemicals and fluids, such as hydraulic fluid, diesel and gasoline, and drilling mud. Accidental release of oil and associated petroleum from trucks, pipelines, storage areas, and the well itself are all potential sources of pollution. If these products were discharged into the local aquifer, at locations where they could become part of storm water runoff, or flow directly into stream channels, then impacts to aquatic habitats would occur. These impacts could include acute toxicity to individual fish, suffocation of aquatic benthic invertebrates as a result of being covered by oil, direct toxicity to food web organisms due to concentrations of volatile organic compounds within and immediately adjacent to the water column, chronic toxicity to fish and food web organisms due to contamination of the adjacent aquifer, and loss of riparian vegetation through acute or chronic toxicity. See Section 4.5.8.3 for a discussion of the laws, regulations and oil field practices that will be applied at the project level to eliminate or mitigate the effects of possible hazardous materials spills to fish and aquatic resources.

TABLE 4-15-SPECIAL STATUS SPECIES EFFECTS ANALYSIS CRITERIA & MODEL USED

Species	Habitat										Species Specific Model (Data used to estimate effects.)	
	Status	Oak Forest	Oak Woodland	Pinon/ Juniper	Conifer	Coast Redwood	Mixed Chaparral	Chamise	Sagebrush	Grassland		Stream/ Riparian
San Joaquin kit fox	E									X		Specific modeled habitat
Giant kangaroo rat	E									X		Specific modeled habitat
Tehachapi white-eared pocket mouse	SS				X							Range limited to conifer habitat in Tehachapi Mts.
Gray squirrel	MIS	X			X							← Habitat checked (X)
Mt. Pinos lodgepole chipmunk	SS				X							Range limited to Tehachapi Mts.
Mule (blacktail) deer	MIS	X	X	X	X	X	X	X	X			← Habitat checked (X)
California condor	E											Specific habitat use areas
Bald eagle	T											Nesting habitat only in withdrawn areas
Swainson's hawk	SS		X							X		← Habitat checked (X)
Northern goshawk	SS				X							← Habitat checked (X)
Peregrine falcon	SS											Modeled for suitable cliff faces
California quail	MIS						X	X				← Habitat checked (X)
Spotted owl	SS	X			X	X						← Habitat checked (X)
Least Bell's vireo	E										X	Stream layer below 2,800 ft. and 4% or less gradient
Willow flycatcher	T										X	Stream layer below 8,000 ft. and 4% or less gradient
Riparian birds	MIS										X	Stream layer
Cavity Nesters	MIS	X			X	X						← Habitat checked (X)
Southwestern pond turtle	SS										X	← Habitat checked (X)
Two-striped garter snake	SS										X	← Habitat checked (X)
Southern rubber boa	SS				X							← Habitat checked (X)
Blunt-nosed leopard lizard	E									X		← Habitat checked (X)
San Diego horned lizard	SS						X	X	X			← Habitat checked (X)
California legless lizard	SS						X	X	X		X	← Habitat checked (X)
Yellow-blotched Ensatina	SS	X			X							← Habitat checked (X)
Tehachapi slender salamander	SS	X			X							Range limited to Tehachapi Mts.
California red-legged frog	T										X	Stream layer below 5,000' with less than 2% gradient
Foothill yellow-legged frog	SS										X	Stream layer only on Monterey RD
Arroyo toad	T										X	Stream layer below 5,000' with less than 2% gradient
Southern steelhead	T											PACFISH Data
Rainbow trout	MIS										X	Stream layer
Arroyo chub	SS										X	Stream layer except Monterey RD
Santa Ana speckled dace	SS										X	Cuyama and Sisquoc Rivers
Smith's blue butterfly												Range limited to modeled habitat in Monterey Rd.
Fairy shrimp complex	E										X	Mt. Pinos & Cuyama RDs

E=Endangered (ESA); T=Threatened (ESA); SS=Sensitive species; MIS=Management indicator species

#### **4.4.4.2.2 Barriers to Fish Migration**

The transportation system for oil and gas development may include stream crossings. Improperly located and/or designed stream crossings could impair fish movement or increase mortality. Oil and gas development requires an infrastructure to support exploration, development, and production activities. Siting and design of these facilities will be outside of riparian/aquatic areas; therefore, only stream crossings may result in direct loss of aquatic habitats. Lessees would be encouraged to minimize stream crossings and, where crossings are unavoidable, cross streams as close to right angles as possible to minimize exposure. All crossings of perennial streams would also be designed to provide for fish passage.

#### **4.4.4.2.3 Indirect Habitat Loss**

The location and extent of infrastructure necessary to support exploration, development, and production activities may have indirect impacts on aquatic habitats. Road location and construction may contribute to localized earth flows or increased sediment production within a watershed. Increased access by the public can result in impacts to riparian areas by causing soil compaction and/or removal of vegetation, erosion, or importation of exotic species.

### **4.4.5 Impact Assessment for Vegetation**

#### **4.4.5.1 *Direct Impacts***

The preliminary investigation (prospecting) phase can require off-road vehicle travel and some access road construction, particularly if seismic reflection or geophysical surveys are used in exploration. This could result in vehicular damage to unknown sensitive plant populations.

Potential direct impacts of oil and gas development on botanical resources are greatest during exploratory drilling and oil/gas field development phases. Direct surface disturbance to vegetation and topsoil results from the construction of access roads, well pads, pipelines, and associated oil field facilities.

#### **4.4.5.2 *Indirect Impacts***

Indirect impacts during exploratory drilling and development could occur through disposal of spent mud, cuttings and fluids from the well bore and changes in drainage. These could affect moisture requirements for sensitive species regeneration, accelerated erosion resulting in sedimentation of down slope habitats and introduction or spread of non-native plants during construction and reclamation activities as described in the following section.

### 4.4.5.3 Noxious Weeds

The spread of noxious weeds on the Los Padres National Forest (LPNF) can threaten the health of all forest ecosystems. The direct, indirect, and cumulative effects of the spread of noxious weeds and nonnative invasive plant species can include reduction of biological diversity, impacts to threatened and endangered species, reduction of wildlife habitat, modification of vegetative structure and species composition, changes to fire and nutrient cycles, and degraded soil structure.

Healthy stands of natural vegetation are generally able to suppress weed development. However, if the soil and natural vegetation are disturbed in some way and seeds are transported to the area, weeds are able to take advantage of the decrease in competition for resources. Additionally, the lack of natural predators enhances the aggressive growth characteristics of noxious weeds. For weeds to invade new habitats, the seeds must be dispersed to these areas.

Oil and gas development, if not properly managed, can provide both seed transport and soil and vegetation disturbance. When a vehicle is driven through a weed-infested area, weed seeds may become lodged between the tire treads, in the coils of a winch, behind the license plate, or in cracks and crevices on the underside of the vehicle. The source of many infestations has been traced to roads, trails, and other travel ways. Seeds may travel hundreds of miles before dropping off into areas that had no weed infestation. Other seed travel can occur via humans and on animals and in their digestive tracts. Birds can transport seeds over large distances.

The goal of noxious weed management is to implement an integrated management program aimed at prevention as well as controlling new starts. Prevention of seed transport, minimization of soils and vegetation disturbance, as well as early detection and containment of noxious weeds are the most efficient method of controlling their spread. To achieve this goal for any new oil and gas lease a Noxious Weed Risk Analysis would be included as part of the NEPA environmental analysis for any SUPO to determine if any lease areas need to be avoided and/or if mitigation measures are needed to prevent introduction and spread of invasive non-native plants.

This noxious weed management program would be implemented for new oil and gas leasing by the following lease information notice (IN). This IN would be a part of all alternatives.

*The lessee shall be responsible for the prevention and control of noxious weeds and/or exotic plants of concern within lease areas where surface occupancy is authorized by this lease and shall provide prevention and control measures prescribed by the Forest Service. Noxious weeds and exotic plants of concern are defined as those species recognized by the LPNF Noxious Weed Management Coordinator.*

*The lessee shall also be responsible for prevention and control of noxious weed and exotic plant infestations, which are not within lease areas where surface occupancy is authorized, or outside of the lease area, in areas determined by the authorized officer to be impacted by noxious plants as a result of lessee activities. Lessee will, when determined by the authorized officer, be required to submit a Noxious Weed Risk Analysis as part of any SUPO or APD. Any Noxious Weed Risk Analysis must be prepared to Forest Service standards by personnel acceptable to the authorized officer.*



*When determined by the authorized officer, based on the Noxious Weed Risk Analysis, lessee shall develop and implement a site-specific Noxious Weed and Exotic Plant Prevention and Control Plan. Such plan shall be subject to Forest Service approval. Upon Forest Service approval, the Noxious Weed and Exotic Plant Prevention and Control Plan shall become a part of the lease, and its provisions shall be enforceable under the terms of the lease.*

Prevention and mitigation measures considered in any *Noxious Weed and Exotic Plant Prevention and Control Plan* should consider including the following:

- *Cleaning vehicles and equipment before entry into disturbed areas and/or if coming from any areas of existing or suspected noxious weed infestation.*
- *Performing cleaning at identified safe locations and safely disposing of materials from cleaning.*
- *Briefing all workers on noxious weed transport, infestation, and prevention and mitigation measures.*
- *Keeping disturbed areas to a minimum and revegetating with native plants as soon as feasible.*

The variance of risk for noxious weed impact among alternatives is directly related to the amount of reasonably foreseeable soil and vegetation disturbed since all alternatives would be subject to the noxious weed (IN). The acres of soil and vegetation expected to be disturbed for each alternative is shown in Tables 2-2, 2-3, 2-5, 2-7, 2-10, 2-12, 2-14 and 2-17. Alternative 2 would have the greatest risk and Alternative 1 the least. The implementation of the noxious weed IN is expected to mitigate any potentially significant noxious weed impacts.

#### **4.4.6 Cumulative Impacts**

Cumulative impacts may pose significant barriers to preservation and recovery of listed species. Species so listed are often at population levels deemed non-viable and actions to improve their status are essential. Additional adverse effects to their habitats, however limited, further reduce capabilities of recovery.

Past and current activities that may result in cumulative impacts, when combined with potential activities under the alternative leasing scenarios under consideration, include:

- *oil and gas development*
- *grazing and recreational development*
- *agricultural development*
- *urban and residential development*
- *development of roads*
- *development of pipelines and power-line corridors*

Future Forest management policies that will have varying effects on biological resources include the initiation of a prescribed burning program; wildfire protection activities; recreation activities; increases or decreases in livestock grazing; and increases or decreases in the Forest transportation system. Specific habitat improvement programs may increase populations and allow expansion into areas not currently occupied, resulting in potential impacts where none exist currently. Determination of these specific impacts, however, is not possible until specific management programs are proposed.

#### **4.4.6.1 Wildfires**

The effect of wildfires on natural ecosystems, ecological units and their respective species can result in short and long-term alterations to these systems, which can be cumulatively significant. Most ecological systems on LPNF are a result of the varying occurrence of wildfire. Chaparral-dependent species normally reach their highest densities in low to mid-successional chaparral conditions. Decadent old stands lack both plant and animal species variability and high species densities. Wildfires that denude a large area, especially in limited habitat types, such as big-cone Douglas fir stands, will result in short-term reductions in species diversity and densities resulting in a potentially significant cumulative impact to biological resources.

If a wildfire were to occur within an oil and gas lease area, lessee biological-impacting activities would be assessed to determine if modification or use restrictions would be necessary until the habitat recovered its vegetative growth and hydrologic function. In such instances, FS personnel would prepare a Burned Area Emergency Report that would identify rehabilitation measures to speed up recovery of habitat functions and identify the manner and duration of restrictions on lessee activities. In addition, a long-term recovery plan for habitat within the lease area may be prepared.

#### **4.4.6.2 Development on Private Lands**

Oil and gas or other development activities on private lands in and near LPNF could result in cumulative impacts. Such developments will require environmental analysis and documentation under NEPA, if federal permits are required, or CEQA where state or local government entitlements are required. The Forest Service will participate in any such CEQA process as notified. The only condition under which cumulatively significant impacts would occur is if impacts are not avoided or sufficient mitigation is not applied. This would require publication of a "statement of overriding considerations" from the discretionary authority.

#### **4.4.7 Irreversible/Irretrievable Impacts**

Agency actions that result in loss of individuals of a species or of occupied habitat may be considered to be potentially significant if restoration is not effective and natural recovery does not occur. However, due to the very limited scope of this project and inasmuch as this action does not authorize actual ground disturbance, no species are expected to be extirpated under any of the alternative leasing scenarios.

If impacts are incurred for a period of time but are reversible in time, they are considered irretrievable. No significant irretrievable impacts are anticipated relative to biological resources due to any of the alternatives.

#### **4.4.8 Short-term/Long-term Tradeoffs**

Full recovery of the biological resources in an area to pre-project conditions, may take decades after removal of the facilities in this semi-arid environment. To the extent disturbed habitats do not rapidly recover, there may occur a long-term tradeoff.

Development of oil and gas resources is a short-term use since the resource is finite and limited in quantity. If oil and gas resources are developed and extracted in the short-term, and if biological resources are degraded in the process, then there is a long-term tradeoff to the extent the viability of a species is impacted or the disturbed habitat does not recover naturally or restoration fails.

The RFD estimates initial acres of species habitats disturbed and remaining acres disturbed after rehabilitation. Lands not rehabilitated can result in a long-term trade off, an irretrievable impact at best and possibly an irreversible impact.

#### **4.4.9 Impacts Not Significant In All Alternatives**

None of the alternative leasing scenarios will result in significant impacts to listed threatened, endangered, proposed or sensitive species. Species listed under the ESA have protected status regardless of which alternative leasing scenario is selected. These species may already be suffering from significant cumulative impacts as a result of past and present human actions. The Endangered Species Act (ESA) prevents the “taking” of any listed species without appropriate mitigation. BLM SLTs, which apply to all alternatives, specifically recognize the need to address listed species and puts the lessee on notice that site-specific surveys will be required once site-specific entitlements are sought. LPNF will require such surveys by either LPNF staff or an independent consultant that meets LPNF requirements. Consultation with U.S Fish and Wildlife Service and/or NOAA Fisheries may also be required at that time. As a result of these site-specific surveys and consultations, impacts will be avoided or mitigated so that the viability of these species is not further jeopardized.

Most native species of plants and animals on LPNF are unlikely to be significantly impacted by any of the reasonably foreseeable oil and gas activities under any of the alternatives. This is due to their habitat requirements not being located where reasonably foreseeable oil and gas activities are expected. This applies to habitats in all withdrawn areas, marine habitats, and to habitats in the non-HOGPA areas where no reasonably foreseeable oil and gas activities are projected.

Fisheries and aquatic/riparian habitats would be protected from impacts by preventing surface occupancy within or immediately adjacent to these habitats. SLTs allow LPNF to move any proposed surface occupancy up to 200 meters. This, in effect, provides for a 400 meter no surface occupancy zone centered on all drainages and riparian areas. Although aquatic resources could still be potentially vulnerable to indirect impacts from pollution and sedimentation, the application of BMPs as discussed in the previous watershed section should effectively mitigate most, if not all, indirect impacts.

#### **4.4.10 Consequences By Alternative**

This section describes the impacts to the environment of TEP, sensitive, and management indicator species that could occur from oil and gas exploration and development for each of the alternative leasing scenarios. As explained in the above section, it has been determined that

impacts to fisheries and aquatic habitats and to vegetation would not be significant under any of the alternative leasing scenarios.

The habitat information modeled as indicated in Table 4-15 was used to assess the effects of oil and gas activities on the TEP, sensitive, and management indicator species whose habitats occur within the study area. The results of this analysis is presented in Tables 4-16, 4-19, 4-21, 4-24, 4-27, 4-29, 4-31, and 4-33. For species potentially affected, the acres potentially *suitable* as habitat is shown for each HOGPA and for the non-HOGPA area. This is followed by the suitable habitat acres subject to development, i.e. acres where oil and gas activities would be allowed under the particular alternative. Next, shown in the middle column of the table, is the percentage of the suitable acres subject to development. The three right hand columns indicate the same type of information for areas actually known to be *occupied* habitat for the particular species.

#### ***4.4.10.1 Impacts of Alternative 1***

Alternative 1 would not result in leasing any additional LPNF lands for oil and gas. Therefore, any impacts would result only from continuation and expansion within existing lease areas. Lands within existing lease areas can be further developed including construction of new roads, pads and pipelines and other oil & gas exploration and development activities.

##### **4.4.10.1.1 Mitigation Measures and Stipulations**

Additional mitigating stipulations cannot be added to existing lessees. Any changes must be negotiated with the lessee since the lease and terms already exist. However, current law, existing lease terms, and Information Notices interpreting lease terms and applicable federal laws and regulations, do apply.

BLM Standard Lease Terms (SLTs) can be applied to avoid or mitigate potentially significant impacts. Lessees can be required to fund field surveys specified by LPNF for biological resources potentially impacted by any proposed ground-disturbing activities. Initial efforts may be applied through site selection in areas where impacts could be avoided. BLM SLTs provide for relocation of proposed sites up to 200 meters and delays up to 60 days. However, SLT mitigation measures are constrained in that they are limited “*to the extent consistent with lease rights granted*” and “*conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.*”

TABLE 4-16: ALTERNATIVE 1: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
Existing Leases in South Cuyama HOGPA	528		163			2425	2411	39				5566
Estimated Acres Disturbed	0.6					1.2	1.2					3.0

TABLE 4-17: ALTERNATIVE 1- LISTED SPECIES' EFFECTS

Existing Lease Areas	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
	6,402						
		ARTO	3,845	3,845	0	0	0
		WIFL	644	644	0	0	0
		BNLL	2	2	0	0	0
		GIKR	2	2	0	0	0
		KIFO	508	508	0	0	0
		SBB	0	0	0	0	0
		SOST	0	0	0	0	0
		LBV	202	202	0	0	0
		CRLF	276	276	0	0	0
		CACO	3,323	3,323	0	0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

#### 4.4.10.1.2 Direct Impacts

The RFD analysis makes estimates for future oil and gas activities in the Sespe, San Cayetano, and South Cuyama areas. RFD projections in the San Cayetano and Sespe areas are for all new wells to be drilled on currently existing well pads. Consequently, there would be no additional disturbance of surface areas. One additional well pad, four additional wells, one-half mile of road, and one-half mile of pipeline are projected for the South Cuyama area resulting in 3.0 acres disturbed initially and 2.0 acres after rehabilitation (one acre of impacts mitigated).

In Table 4-16 the RFD projected 3.0 acres of initial land disturbance in the South Cuyama area has been distributed by vegetation type occurring in the HOGPA. This was done in proportion to the percent of vegetation type in existing leases in the HOGPA.

Modeling (refer to Table 4-15) determined that due to the application of current protective measures, specifically those in existing lease terms, effects to listed species habitats are non-existent. BLM standard lease terms, which provide for relocation of proposed oil and gas activities up to 200 meters, are likely to preclude future direct significant impacts to any biological resources.

#### 4.4.10.1.3 Indirect Impacts

New wells on existing well pads in the Sespe and San Cayetano HOGPAs could result in increases in indirect impacts through increased vehicular traffic, use of heavy equipment,

increased potential for spills of petroleum products from drilling equipment and from the new well sites themselves. During drilling, the potential for accidental discharges into fish-bearing waters, specifically Sespe Creek, would be increased. There would be no increase in long-term, direct impacts in these areas.

Spills of toxic materials can affect riparian aquatic habitats. With implementation of the provisions of the BMPs and the laws and regulations designed to control sedimentation and pollution, no significant, long-term impacts to riparian and/or aquatic habitats are expected. However, localized, short-term impacts could occur.

Depending on species and location, 200 meters may not constitute a sufficient relocation distance to avoid significant indirect impacts such as those resulting from noise and human presence. In such cases, government authority is limited and moving activities further than 200 meters would depend on lessee goodwill. Federally listed species have protection under the ESA. However, conflicts between species rights under the ESA and lessee's rights under a lease may arise depending on relative locations of the biological habitats and the oil and gas resources.

#### **4.4.10.1.4 Cumulative Impacts**

Future development of existing oil and gas lease areas in the South Cuyama area if added to Forest Service fuel break construction/maintenance and grazing activities in the area, and potential residential development in Cuyama Valley under Santa Barbara County's proposed Agricultural Cluster Development policies, could contribute to substantial alteration of habitats. This could, in turn, result in a reduction in the habitat suitability for biological resources. Combinations of any of these activities could directly and indirectly affect highly sensitive plant and wildlife habitats.

Cumulative effects may occur to aquatic ecosystems and their respective species as a result of increases in sediment run-off from well pads and roads; and increases in contaminants from point and non-point sources.

#### **4.4.10.1.5 Irreversible/Irretrievable Impacts**

No significant irreversible or irretrievable impacts are anticipated from Alternative 1. No species will be lost or will be put in greater peril due to this alternative, and no resource production will be lost.

#### **4.4.10.1.6 Short-term/Long-term Tradeoffs**

There would be a short-term gain in oil and gas production at the cost of possible further impact to listed species.

#### 4.4.10.1.7 Forest Plan Consistency

Section 4.2.6 of the Los Padres Forest Plan indicates improvement of wildlife and fish habitat will occur and that “Habitat improvement will enhance conditions for sensitive, endangered and threatened species.”

This alternative is not consistent with the Forest Plan in that it does not address goals and objectives for biological resources nor provide for their implementation. While it does not preclude the potential to improve habitats of fish, wildlife and plants, especially those listed as threatened, endangered, proposed and sensitive, additional improvement projects must be actively conducted to off-set possible adverse impacts of oil and gas development if Forest Plan objectives are to be met.

#### 4.4.10.2 *Impacts of Alternative 2*

Alternative 2, if implemented, would permit leasing all of the 766,867-acre study area for oil and gas development. This includes all lands within LPNF that are not withdrawn from mineral entry. Currently all designated Wilderness areas (1,008,877 acres), the Big Sur Coastal Zone (42,089 acres) and the Santa Ynez watershed (152,228 acres) are withdrawn from mineral entry. The BLM Standard Lease Terms and other existing laws would be the only mitigating constraints on leased LPNF lands. No additional Forest Service stipulations would be attached to leases under this leasing scenario.

The RFD analysis projects 163 acres of foreseeable initial land disturbance and 70 acres of land disturbance after rehabilitation in the HOGPAs under the Alternative 2 scenario.

Projections of vegetative disturbance by HOGPA for Alternative 2 are shown in Table 4-18.

TABLE 4-18: ALTERNATIVE 2: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

HOGPA	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
Piedra Blanca	0.5	0	0.1	1.3	0	12.9	7.1		0.1	0	0	22.0
San Cayetano	0.9	0	0	1.8	0	9.3	26.1	0.2	0.2	0	0	38.4
Sespe	1.3	0	0	0	0	3.7	24.1	5.4	0.7	0	0	35.2
Rincon Cr.	0.1	0.1	0	0	0	2.2	3.5	0	0	0	0	6.0
S. Cuyama	0.5	0.3	21.4	0.6	0	4.2	4.0	2.5	1.8	0	0	35.3
La Brea Cyn.	0.1	1.1	0	0	0	2.2	4.6	0	0	0	0	8.1
Figueroa Mtn.	0	0.1	0	2.1	0	0.6	3.0	0	0.3	0	0	6.1
Lopez Cyn.	0.2	0	0	0	0	0.6	5.3	0	0	0	0	6.1
Monroe Swell	0	0	0	0	0	2.7	2.5	0	0.9	0	0	6.1
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	3.6	1.6	21.5	5.8	0	38.4	80.2	8.1	4.0	0	0	163.3

#### 4.4.10.2.1 Mitigation Measures and Stipulations

The measures to avoid and/or mitigate impacts to biological resources that could be applied in Alternative 2 are the same as in Alternative 1. They are the USFWS and NMFS regulations for

ESA, the BLM Standard Lease Terms (SLTs), and Information (Advisory) Notices from the Forest Service. No additional lease stipulations would be applied to oil and gas exploration and development activities under Alternative 2. Lessees would be encouraged to locate activities in areas where impacts could be avoided but would not necessarily always be required to do so. Site-specific biological surveys would be required once proposed activities are located on the ground and ground-disturbing entitlements are proposed.

TABLE 4-19: ALTERNATIVE 2: LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,470	9,470	69	69	100
		WIFL	13,241	13,241	52	0	0
		BNLL	1,270	1,270	76	0	0
		GIKR	1,270	1,270	76	0	0
		KIFO	25,860	25,860	51	0	0
		SBB	0	0	0	0	0
		SOST	224	224	9	13	100
		LBV	2,287	2,287	0	0	0
		CRLF	5,667	5,667	156	156	100
		CACO	17,600	17,600	10	0	0
Outside HOGPAs	627,523						
		ARTO	25,213	25,213	2858	2,858	100
		WIFL	54,094	54,094	38	0	0
		BNLL	692	692	54	0	0
		GIKR	692	692	54	0	0
		KIFO	15,173	15,173	62	0	0
		SBB	85	85	0	0	0
		SOST	1,102	1,102	378	378	100
		LBV	18,928	18,928	0	0	0
		CRLF	38,199	38,199	1567	1,587	100
		CACO	61,425	61,425	0	0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

Species listed under the ESA have protected status regardless of the leasing scenario that is selected. Consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service is required at this pre-leasing tier of the process and again when lessees submit site-specific plans.

Conflicts between species rights under the ESA and lessee's rights under a lease may arise depending on relative locations of the biological habitats and oil and gas resources.

#### 4.4.10.2.2 **Direct Impacts**

Development of 151 wells and 19 miles of new roads could result in additional mortality to biological resources and reduce and/or degrade their habitats. This alternative is estimated to result in disturbance of 163.3 acres. Most of these effects (118 acres) occur in chaparral habitats that cover a high percentage of this forest and where occupancy by special-status species is low. Effects to limited habitats, such as conifer, redwood and grasslands are low (5.8, 0.0 and 4.0



acres respectively). However, Table 4-19 indicates that occupied habitat of several listed species could be potentially affected.

BLM SLTs allow for relocation of proposed oil and gas activities up to 200 meters. In most, if not all cases, this requirement would preclude direct significant impacts to terrestrial species, fisheries and riparian associated species, and listed and sensitive plants.

#### **4.4.10.2.3 Indirect Impacts**

Indirect impacts include increased noise and human activity in the areas where development takes place. Road building and other developments may foster the expansion of populations of exotic plant and animal species that could displace or harm native species. There is also the potential for increased pollution from vehicular emissions, heavy equipment use, noise and spills of toxic materials or fluids.

#### **4.4.10.2.4 Cumulative Impacts**

Cumulative impacts are similar to those for Alternative 1, but of greater magnitude as a result of the increased amount of development and consequent habitat disturbance. The Sespe and South Cuyama HOGPAs, where a high number of special status species are located within and adjacent to National Forest lands, would receive 43% of the initial disturbance.

#### **4.4.10.2.5 Irreversible/Irretrievable Impacts**

Given implementation of mitigation measures, no significant irreversible or irretrievable impacts are anticipated from this alternative scenario. No species will be lost or suffer reduced viability due to this alternative, and no resource production will be lost.

#### **4.4.10.2.6 Short-term/Long-term Tradeoffs**

Short-term/long-term tradeoffs are the same as for Alternative 1, but would involve over 155 additional acres of alteration and involve six additional HOGPAs. Impacts to biological resources would be increased due to the amount and additional locations of area affected.

#### **4.4.10.2.7 Significant Unavoidable Impacts**

Application of SLTs should provide LPNF with the means to mitigate most potentially significant impacts resulting from oil and gas exploration and development. Whether or not unavoidable significant impacts could occur would be determined when lessees seek site-specific entitlements and biological surveys are conducted. LPNF can specify avoidance up to 200 meters or other mitigation measures as a result of site-specific surveys to the extent consistent with lease rights granted and the ESA.

#### **4.4.10.2.8 Forest Plan Consistency**

Section 4.2.6 of the Los Padres Forest Plan indicates improvement of wildlife and fish habitat will occur and that "Habitat improvement will enhance conditions for sensitive, endangered and threatened species."

This alternative is not consistent with the Forest Plan in that it does not address goals and objectives for fish and wildlife nor provide for their implementation. While it does not preclude the potential to improve habitats of fish, wildlife and plants, especially those listed as threatened or endangered, proposed, and sensitive, additional improvement projects must be actively conducted to off-set adverse impacts of oil and gas development if Forest Plan objectives are to be met.

#### 4.4.10.3 Impacts of Alternative 3

Alternative 3 is intended, to the extent feasible, to meet all of the adopted goals and objectives of the Forest Plan.

TABLE 4-20: ALTERNATIVE 3: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

HOGPA	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
Piedra Blanca	0	0	0	0	0	0	0	0	0	0	0	0
San Cayetano	0.1	0	0	0.2	0	0.7	2.0	0	0	0	0	3
Sespe	0.5	0	0	0	0	1.5	10.0	2.2	0.3	0	0	14.5
Rincon Cr.	0	0.3	0	0	0	2.0	0.6	0.1	0	0	0	3
S. Cuyama	0.3	0.2	13.0	0.4	0	2.6	2.4	1.5	1.1	0	0	21.5
La Brea Cyn.	0	0.3	0	0	0	1.6	1.1	0	0	0	0	3
Figueroa Mtn.	0	0	0	0	0	0	0	0	0	0	0	0
Lopez Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Monroe Swell	0	0	0	0	0	0	0	0	0	0	0	0
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.9	0.8	13.0	0.6	0	8.4	16.1	3.8	1.4	0	0	45.0

##### 4.4.10.3.1 Mitigation Measures and Stipulations

"No Surface Occupancy" (NSO), "Limited Surface Use" (LSU) and "Timing Limitations" (TL) lease stipulations were developed for Alternative 3 based on the impact analysis and Forest Plan consistency analyses for Alternative 2. Unlike the SLTs in the Alternative 2 leasing scenario, these stipulations are not limited to 200 meters and/or 60 days. These stipulations constrain oil and gas development sufficiently to meet the biological resource levels of the Forest Plan standards and guidelines and mitigate potential impacts below the level of significance. The biological stipulations for Alternative 3, shown in Table 4-22, include constraints to protect species habitats necessary to promote recovery of listed species and to ensure continued viability of sensitive species. Furthermore, since lease stipulations constrain the lease rights they resolve the potential conflicts that could occur in the Alternative 2 leasing scenario between biological resource needs and the granted rights within a lease.

##### 4.4.10.3.2 Direct Impacts

The RFD analysis indicates Alternative 3 would result in the disturbance of 45 acres of habitat, as shown in Table 4-20. Implementation of Alternative 3 provides for the meeting of all listed species recovery goals and desired habitat capability for sensitive species. Nearly half of these

effects (24.5 acres) occur in chaparral habitats that cover a high percentage of this forest and where occupancy by special-status species is low. There are no effects to conifer and redwood habitats and grasslands effects are projected to affect less than two acres. There are minimal effects (refer to Table 4-21) on habitats of all listed species with the exception of the California red-legged frog where 530 acres of habitat outside the HOGPAs could potentially be affected. However, development outside of the HOGPA's is not reasonably foreseeable.

TABLE 4-21: ALTERNATIVE 3: LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,470	5,406	69	0	0
		WIFL	13,241	7,327	0	0	0
		BNLL	1,270	966	0	0	0
		GIKR	1,270	966	0	0	0
		KIFO	25,860	13,486	0	0	0
		SBB	0	0	0	0	0
		SOST	224	28	13	0	0
		LBV	2,287	709	0	0	0
		CRLF	5,667	2,902	156	<1	<1
		CACO	17,600	1,924	0	0	0
Outside HOGPAs	627,523						
		ARTO	25,213	9,107	2680	8	<1
		WIFL	54,094	21,324	0	0	0
		BNLL	692	378	0	0	0
		GIKR	692	378	0	0	0
		KIFO	15,173	9,586	0	0	0
		SBB	85	16	0	0	0
		SOST	1,102	133	371	13	4
		LBV	18,928	6,123	0	0	0
		CRLF	38,199	8,021	1459	530	36
		CACO	61,425	12,311	0	0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

#### 4.4.10.3.3 Indirect Impacts

If Alternative 3 were implemented, there could be additional non-significant indirect impacts on biological resources.

#### 4.4.10.3.4 Cumulative Impacts

No additions to the cumulatively significant biological impacts are expected assuming effective implementation of the mitigating stipulations of Alternative 3.

TABLE 4-22: ALTERNATIVE 3 FISHERIES, WILDLIFE AND SENSITIVE PLANT STIPULATIONS

<i>Stipulation Name</i>	<i>Forest Plan Direction</i>	<i>Mgmt. Areas</i>	<i>GIS Attribute Data</i>	<i>LSU</i>	<i>TL</i>	<i>NSO</i>
Special Areas	Special Area Direction	66, 67, 68, 69				Research Natural Areas; Botanical Areas; Geologic Special Interest Areas; Sierra Madre Cultural Area
Condor	Critical Habitat	All	CONHAB	Consultation with US Fish & Wildlife required. Mitigation up to no surface occupancy possible.		
Arroyo south-western toad	Critical habitat (finalized)		To be determined	Consultation with US Fish & Wildlife required. Mitigation up to no surface occupancy possible.		
Peregrine falcon	Nesting Habitat	All	OGCLFNST sites ranked A-C	Survey, analysis, and viability assessment required. Mitigation up to no surface occupancy possible.		
Kit Fox	Habitat	1, 5, 6A, 10, 12	Grasslands and sagebrush from Vegetation Layer below 2,600 feet elev.	Surveys required prior to occupancy, which may result in mitigation up to no surface occupancy.		
Smith's blue butterfly	Habitat	48	Management Unit	Surveys required prior to occupancy, which may result in mitigation up to no surface occupancy.		
Sensitive Plants	Known locations	All	Sensitive Plant Layer: <i>Caulanthus californicus</i> , <i>Eremalche parryi kernensis</i> , <i>Eriastrum hooveri</i>	Site specific analysis required to determine potential for sensitive plant species. Surveys must be conducted in potential habitats. Mitigation up no surface occupancy possible.		
Goshawk	Nesting Sites	12, 52, 61	Vegetation layer: Coniferous Habitats	Limited surface use in 25-acre alternative core habitat area adjacent to any occupied site(s).	Survey and analysis required which may result in mitigation up to no surface occupancy during nesting.	
Spotted Owl	Nesting Sites	All	SPOT95_1		Survey and analysis required. May result in no surface occupancy during nesting season, March 1 – August 30.	

**4.4.10.3.5 Irreversible/Irretrievable Impacts**

No additional irreversible or irretrievable impacts to biological resources are anticipated from Alternative 3.

#### 4.4.10.3.6 Short-term/Long-term Tradeoffs

Short-term/long-term tradeoffs are the same as for Alternative 1, but involve over 37 additional acres of alteration and involve three additional HOGPAs.

#### 4.4.10.3.7 Significant Unavoidable Impacts

No additional significant unavoidable impacts are anticipated under the Alternative 3 leasing scenario. The amount of land projected to be disturbed is 45 acres for Alternative 3 compared to 163 acres for Alternative 2. The Alternative 3 lease stipulations are expected to result in avoidance or mitigation of any potentially significant impacts.

#### 4.4.10.3.8 Forest Plan Consistency

Alternative 3 is consistent with the Forest Plan.

#### 4.4.10.4 Impacts of Alternative 4

The objective for Alternative 4, "Emphasize Surface Resource," is to comply with or exceed Forest Plan requirements, avoid or mitigate potentially significant impacts and to enhance protection of surface resources where possible while providing for additional oil and gas leasing.

TABLE 4-23: ALTERNATIVE 4: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

HOGPA	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
Piedra Blanca	0	0	0	0	0	0	0	0	0	0	0	0
San Cayetano	0.1	0	0	0.2	0	0.7	2.0	0	0	0	0	3
Sespe	0.5	0	0	0	0	1.5	10.0	2.2	0.3	0	0	14.5
Rincon Cr.	0	0.3	0	0	0	2.0	0.6	0.1	0	0	0	3.0
S. Cuyama	0.3	0.2	11.9	0.3	0	2.3	2.1	1.4	1.0	0	0	19.5
La Brea Cyn.	0	0.3	0	0	0	1.6	1.1	0	0	0	0	3.0
Figueroa Mtn.	0	0	0	0	0	0	0	0	0	0	0	0
Lopez Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Monroe Swell	0	0	0	0	0	0	0	0	0	0	0	0
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.9	0.8	11.9	0.5	0	8.1	15.8	3.7	1.3	0	0	43.0

#### 4.4.10.4.1 Mitigation Measures and Stipulations

Additional stipulations, shown in Table 4-25, were developed for protection of potential habitat areas and buffers to existing sites to compensate for the impact of surface disturbance during oil and gas exploration and operations. These stipulations are added to Alternative 3 to produce Alternative 4.

TABLE 4-24: ALTERNATIVE 4: LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,470	4,963	69	<1	<1
		WIFL	13,241	6,946	0	0	0
		BNLL	1,270	960	0	0	0
		GIKR	1,270	960	0	0	0
		KIFO	25,860	13,124	0	0	0
		SBB	0	0	0	0	0
		SOST	224	21	13	0	0
		LBV	2,287	663	0	0	0
		CRLF	5,667	2,730	154	2	1
		CACO	17,600	1,804	0	0	0
Outside HOGPAs	627,523						
		ARTO	25,213	8,367	2673	8	<1
		WIFL	54,094	20,485	0	0	0
		BNLL	692	377	0	0	0
		GIKR	692	377	0	0	0
		KIFO	15,173	9,375	0	0	0
		SBB	85	0	0	0	0
		SOST	1,102	119	370	12	3
		LBV	18,928	5,924	0	0	0
		CRLF	38,199	7,697	1324	529	40
		CACO	61,425	15,048	0	0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith’s blue butterfly; SOST = Southern steelhead; LBV = Least Bell’s vireo; CRLF = California red-legged frog; CACO = California condor.

TABLE 4-25: ALTERNATIVE 4 FISHERIES, WILDLIFE, AND SENSITIVE PLANT STIPULATIONS

Stipulation Name	Forest Plan Direction	Mgmt. Areas	GIS Attribute Data	LSU	TL	NSO
Wildlife						
Goshawk	Nesting Sites	12, 61	Vegetation layer: Coniferous Habitats	LSU in an additional 25-acre alternative core habitat area adjacent to any occupied site(s).	Survey and analysis required. May result in NSO during nesting	
Peregrine	Nesting habitat for sites ranked A-C	All	OGCLFNST	Survey and analysis required. May result in NSO within ½ mile of any site including those identified as “D” sites.		
Spotted Owl	Nesting Sites	All	SPOT95_1	Survey and analysis required. May result in perennial NSO within ½ mile of nest sites.	NSO within ½ mile from March 1 to August 30 (nesting season)	

**4.4.10.4.2 Direct Impacts**

Alternative 4 could result in 43 acres of habitat alteration. However, stipulations provide for increased protection of habitats and potential habitats of listed and sensitive species. Most of these effects occur in chaparral (24 acres) and pinyon-juniper (12 acres) habitats that cover a high percentage of this forest and where occupancy by special-status species is low. Effects to limited habitats, such as conifer, redwood and grasslands are low (0.5, 0.0 and 1.3 acres

respectively). There are minimal effects (refer to Table 4-24) on habitats of all listed species with the exception of the California red-legged frog where 529 acres of habitat outside the HOGPAs could potentially be affected. However, development outside of the HOGPA's is not reasonably foreseeable.

#### **4.4.10.4.3 Indirect Impacts**

Indirect impacts would be similar to Alternative 3.

#### **4.4.10.4.4 Cumulative Impacts**

Cumulative impacts would be positive for biological resources in that potential habitats of listed and some sensitive species would be protected, thus allowing for population increases and range expansion.

#### **4.4.10.4.5 Irreversible/Irretrievable Impacts**

No additional irreversible or irretrievable impacts to biological resources are anticipated.

#### **4.4.10.4.6 Short-term/Long-term Tradeoffs**

There would be limited short and long-term trade-offs of biological resources since only 35 additional acres of existing habitats could be affected by oil and gas development.

#### **4.4.10.4.7 Significant Unavoidable Impacts**

No additional significant unavoidable impacts are expected.

#### **4.4.10.4.8 Forest Plan Consistency**

Alternative 4 is consistent with LPNF Forest Plan biological requirements and objectives.

### ***4.4.10.5 Impacts of Alternative 4a***

Alternative 4a is the same as Alternative 4 except Inventoried Roadless Areas (IRAs) are given a No Surface Occupancy (NSO) stipulation. The impacts of this alternative would be similar, but less than Alternative 4. Since Alternative 4 had no significant impacts projected neither does Alternative 4a. Likewise, Alternative 4a is in compliance with the Forest Plan. Most of these effects occur in chaparral (74%) habitat that covers a high percentage of this forest and where occupancy by special-status species is low. Effects to limited habitats, such as conifer, redwood and grasslands are none to very low (0.2, 0 and 0.5 acres respectively).

The additional of the NSO stipulation to IRA's increases the number of acres not available for surface occupancy and reduces the RFD projections. The effect this has on the acres of vegetation types affected per HOGPA is shown in Table 4-27. The effects on habitats of listed species are minimal with the exception of the California red-legged frog where 221 acres of habitat outside the HOGPAs could potentially be affected.

TABLE 4-26: ALTERNATIVE 4A: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

HOGPA	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
Piedra Blanca	0	0	0	0	0	0	0	0	0	0	0	0
San Cayetano	0.1	0	0	0.2	0	0.7	2.0	0	0	0	0	3
Sespe	0.5	0	0	0	0	1.5	10.0	2.2	0.3	0	0	14.5
Rincon Cr.	0	0.3	0	0	0	2.0	0.6	0.1	0	0	0	3
S. Cuyama		0	1.9	0	0	0.4	0.3	0.2	0.2	0	0	3
La Brea Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Figueroa Mtn.	0	0	0	0	0	0	0	0	0	0	0	0
Lopez Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Monroe Swell	0	0	0	0	0	0	0	0	0	0	0	0
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.6	0.3	1.9	0.2	0	4.6	12.9	2.5	0.5	0	0	23.5

TABLE 4-27: ALTERNATIVE 4A: LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,470	765	69	0	0
		WIFL	13,241	719	0	0	0
		BNLL	1,270	98	0	0	0
		GIKR	1,270	98	0	0	0
		KIFO	25,860	856	0	0	0
		SBB	0	0	0	0	0
		SOST	224	6	13	0	0
		LBV	2,287	137	0	0	0
		CRLF	5,667	438	154	2	1
		CACO	17,600	172	0	0	0
Outside HOGPAs	627,523						
		ARTO	25,213	3,082	2,679	<1	<1
		WIFL	54,094	6,097	0	0	0
		BNLL	692	216	0	0	0
		GIKR	692	216	0	0	0
		KIFO	15,173	8,471	0	0	0
		SBB	85	16	0	0	0
		SOST	1,102	55	358	12	3
		LBV	18,928	1,979	0	0	0
		CRLF	38,199	3,111	1,103	221	20
		CACO	25,213	3,082	2,679	<1	<1

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

#### 4.4.10.6 Impacts of Alternative 5

Alternative 5 is comprised of the Alternative 4 scenario in the non-HOGPA area and the Alternative 3 scenario with Alternative 4 biological stipulations in the HOGPAs. Furthermore Alternative 5 reduces the area offered for lease by not including NSO lands that cannot be accessed by current slant drilling practices on LPNF. The RFD projections for Alternative 5 are the same as Alternative 3. The projected impacts and Forest Plan compliance is the same as Alternative 4, since Alternative 4 biological stipulations apply in the HOGPAs. Most of these



effects occur in chaparral (54%) and pinyon-juniper (29%) habitats that cover a high percentage of this forest and where occupancy by special-status species is low. Effects to limited habitats, such as conifer, redwood and grasslands are low (0.6, 0.0 and 1.4 acres respectively). There are minimal effects (refer to Table 4-29) on habitats of all listed species with the exception of the California red-legged frog where 530 acres of habitat outside the HOGPAs could potentially be affected. However, development outside of the HOGPAs is not reasonably foreseeable.

The acres of vegetation types affected for Alternative 5, per HOGPA, are shown in Table 4-28.

TABLE 4-28: ALTERNATIVE 5: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

HOGPA	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
Piedra Blanca	0	0	0	0	0	0	0	0	0	0	0	0
San Cayetano	0.1	0	0	0.2	0	0.7	2.0	0	0	0	0	3
Sespe	0.5	0	0	0	0	1.5	10.0	2.2	0.3	0	0	14.5
Rincon Cr.	0	0.2	0	0	0	1.6	1.2	0	0	0	0	3
S. Cuyama	0.3	0.2	13.0	0.4	0	2.6	2.4	1.5	1.1	0	0	21.5
La Brea Cyn.	0	0.6	0	0	0	1.2	1.2	0	0	0	0	3
Figueroa Mtn.	0	0	0	0	0	0	0	0	0	0	0	0
Lopez Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Monroe Swell	0	0	0	0	0	0	0	0	0	0	0	0
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.9	1.0	13.0	0.6	0	7.6	16.8	3.7	1.4	0	0	45.0

#### 4.4.10.6.1 Impacts of Alternative 5a

Alternative 5a is the same as Alternative 5 except Inventoried Roadless Areas (IRAs) are given a No Surface Occupancy (NSO) stipulation. NSO areas that cannot be accessed by current slant drilling practices on LPNF are not offered for lease. The impacts of this alternative would be similar, but less than Alternative 5. Since Alternative 5 had no significant impacts projected neither does Alternative 5a. Likewise, Alternative 5a is in compliance with the Forest Plan. Most of these effects occur in chaparral (76%) habitat that covers a high percentage of this forest and where occupancy by special-status species is low. Effects to limited habitats, such as conifer, redwood and grasslands are none to very low (0.2, 0.0 and 0.5 acres respectively).

The additional of the NSO stipulation to IRA's increases the number of acres not available for surface occupancy and reduces the RFD projections. The effect this has on the acres of vegetation types affected per HOGPA is shown in Table 4-31. The effects on habitats of listed species are minimal with the exception of the California red-legged frog where 221 acres of habitat outside the HOGPAs could potentially be affected. However, development outside of the HOGPA's is not reasonably foreseeable.

TABLE 4-29: ALTERNATIVE 5: LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,470	5,430	69	0	0
		WIFL	13,241	7,401	0	0	0
		BNLL	1,270	966	0	0	0
		GIKR	1,270	966	0	0	0
		KIFO	25,860	13,442	0	0	0
		SBB	0	0	0	0	0
		SOST	224	16	0	0	0
		LBV	2,287	702	0	0	0
		CRLF	5,667	2,887	156	1	<1
		CACO	17,600	1,983	0	0	0
Outside HOGPAs	627,523						
		ARTO	25,213	8,312	2,680	7	<1
		WIFL	54,094	20,410	0	0	0
		BNLL	692	373	0	0	0
		GIKR	692	373	0	0	0
		KIFO	15,173	9,371	0	0	0
		SBB	85	16	0	0	0
		SOST	1,102	117	370	12	<1
		LBV	18,928	5,917	0	0	0
		CRLF	38,199	7,637	1,325	530	40
		CACO	61,425	17,618	0	0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

TABLE 4-30: ALTERNATIVE 5A: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
HOGPAs (Total for All)	0	0	0	0	0	0	0	0	0	0	0	0
Piedra Blanca	0	0	0	0	0	0	0	0	0	0	0	0
San Cayetano	0.1	0	0	0.2	0	0.7	2.0	0	0	0	0	3.0
Sespe	0.5	0	0	0	0	1.5	10.0	2.2	0.3	0	0	14.5
Rincon Cr.	0	0.2	0	0	0	1.6	1.2	0	0	0	0	3.0
S. Cuyama	0	0	1.8	0	0	0.4	0.4	0.2	0.2	0	0	3.0
La Brea Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Figueroa Mtn.	0	0	0	0	0	0	0	0	0	0	0	0
Lopez Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Monroe Swell	0	0	0	0	0	0	0	0	0	0	0	0
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.6	0.2	1.8	0.2	0	4.2	13.6	2.4	0.5	0	0	23.5

TABLE 4-31: ALTERNATIVE 5A:LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,470	899	69	0	0
		WIFL	13,241	1242	0	0	0
		BNLL	1,270	102	0	0	0
		GIKR	1,270	102	0	0	0
		KIFO	25,860	927	0	0	0
		SBB	0	0	0	0	0
		SOST	224	11	13	0	0
		LBV	2,287	153	0	0	0
		CRLF	5,667	1,669	154	1	<1
		CACO	5,103	155	0	0	0
Outside HOGPAs	627,523						
		ARTO	25,213	3,042	2,679	<1	<1
		WIFL	54,094	6,149	0	0	0
		BNLL	692	213	0	0	0
		GIKR	692	213	0	0	0
		KIFO	15,173	8,464	0	0	0
		SBB	85	16	0	0	0
		SOST	1,102	53	358	12	3
		LBV	18,928	1,997	0	0	0
		CRLF	38,199	3,105	1,103	221	20
		CACO	61,425	5,267	0	0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

#### 4.4.10.7 Impacts of the New Preferred Alternative

The New Preferred Alternative provides for the implementation of Alternative 5a in three HOGPAs -- San Cayetano, Sespe and South Cuyama; and Alternative 1 in the remaining six HOGPAs, and in the study area outside of the HOGPA areas.

The New Preferred Alternative is in compliance with the Forest Plan. Most of these effects (73%) occur in chaparral habitat that covers a high percentage of this forest and where occupancy by special-status species is low. Effects to limited habitats, such as conifer, redwood and grasslands are none to very low (0.2, 0.0 and 0.5 acres respectively). There would be no effect on the occupied habitat of any listed species.

TABLE 4-32: NEW PREFERRED ALTERNATIVE: ACRES OF VEGETATION TYPES POTENTIALLY AFFECTED

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood-land	Pinyon/Juniper	Conifer	Coast Red-wood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	
HOGPAs (Total for All)	0	0	0	0	0	0	0	0	0	0	0	0
Piedra Blanca	0	0	0	0	0	0	0	0	0	0	0	0
San Cayetano	0.1	0	0	0.2	0	0.7	2.0	0	0	0	0	3.0
Sespe	0	0.5	0	0	0	1.5	10.0	2.2	0.3	0	0	14.5
Rincon Cr.	0	0	0	0	0	0	0	0	0	0	0	0
S. Cuyama	0	0	1.8	0	0	0.4	0.4	0.2	0.2	0	0	3.0
La Brea Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Figueroa Mtn.	0	0	0	0	0	0	0	0	0	0	0	0
Lopez Cyn.	0	0	0	0	0	0	0	0	0	0	0	0
Monroe Swell	0	0	0	0	0	0	0	0	0	0	0	0
Non-HOGPA	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.1	0.5	1.8	0.2	0	2.6	12.4	2.4	0.5	0	0	20.5

TABLE 4-33: NEW PREFERRED ALTERNATIVE: LISTED SPECIES EFFECTS

	Acres	Species <sup>1</sup>	Acres Potentially Suitable	Suitable Acres Subject to Development	Acres of Occupied Habitat	Occupied Habitat Subject to Development	% of Occupied Habitat Subject to Development
Inside HOGPAs	139,324						
		ARTO	9,165	880	10	69	0
		WIFL	12,224	826	7	0	0
		BNLL	1,270	102	8	0	0
		GIKR	1,270	102	8	0	0
		KIFO	25,860	927	4	0	0
		SBB	0	0	0	0	0
		SOST	172	11	6	13	0
		LBV	1,814	144	8	0	0
		CRLF	5,077	405	8	136	0
		CACO	1,931	135	7	0	0
Outside HOGPAs	627,523						
		ARTO	0	0		0	0
		WIFL	0	0		0	0
		BNLL	0	0		0	0
		GIKR	0	0		0	0
		KIFO	0	0		0	0
		SBB	0	0		0	0
		SOST	0	0		0	0
		LBV	0	0		0	0
		CRLF	0	0		0	0
		CACO	0	0		0	0

<sup>1</sup> ARTO = Arroyo toad; WIFL = Willow flycatcher; BNLL = Blunt-nosed leopard lizard; GIKR = Giant kangaroo rat; KIFO = Kit fox; SBB = Smith's blue butterfly; SOST = Southern steelhead; LBV = Least Bell's vireo; CRLF = California red-legged frog; CACO = California condor.

## 4.5 SOCIAL ENVIRONMENT

This section describes the potential social effects of the alternatives for additional oil and gas leasing on LPNF. The social environment is divided into the following components, each of which is discussed below:

*Heritage Resources*  
*Socioeconomic/Growth*  
*Social Impacts*  
*Access/Traffic*

*Land & Resource Management Plan*  
*Scenic Resources*  
*Safety and Hazards*  
*Recreation Opportunities*

### 4.5.1 Heritage Resources

#### 4.5.1.1 *Introduction*

A wide range of cultural resources is known to exist within the oil and gas lease study area. These include archaeological sites, historic sites, and areas important to contemporary Native American culture. However, it is not possible at this time to predict specific impacts from future specific developments. This is due to the lack of information about the exact location, acreage and configuration of the future facilities, as well as the lack of detailed survey information about cultural resources for the vast majority of the Forest. As noted in the discussion of the Affected Environment, less than 3% of LPNF has been the subject of detailed cultural resources surveys, and the areas that have been surveyed have been chosen based on locations of proposed projects or roads, not on the likelihood of containing cultural resources.

Although specific site impacts and appropriate mitigation measures are not known (and cannot be determined) at this time, it is possible to assess, in a general way, whether any (or all) oil and gas development alternatives are likely to result in significant impacts to cultural resources. This can be done because protection of cultural resources is required under 36 CFR Part 800, the implementing regulation for Section 106 of the National Historic Preservation Act, and because no development plan for any specific oil and gas lease in LPNF will be approved unless cultural resource surveys and oil and gas facility plans demonstrate that impacts to cultural resources will be less than significant.

A project is considered to have a potentially significant impact on heritage resources if it could adversely affect a property that is eligible for the National Register of Historic Places. In accordance with 36 CFR 800.9(b), an effect is considered adverse when "it may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." This would include any of the following potential effects:

1. *Physical destruction, damage, or alteration of all or part of the resource;*
2. *Alteration of the character of the resource's setting, when the setting contributes to the significance of the resource;*
3. *Introduction of visual, audible, or atmospheric elements that are out of character with the resource or would alter its setting;*
4. *Neglect of the resource that could lead to its deterioration; or,*
5. *Transfer, sale, or lease of the property.*

In addition to such direct impacts, degradation, and consequently a significant impact, could occur when the creation of new access to an area could result in adverse effects to nearby resources. Such indirect impacts are potentially most significant to highly visible sites such as rock art and Native American village sites. Impacts to heritage resources that have religious or very high cultural significance, such as human burials, generally cannot be mitigated below the level of significance. If avoidance of such resources were not possible, a significant impact would occur. The appropriate avoidance distance between such a site or area and any oil or gas facilities will have to be determined based on the nature of the site, the type of impacts that could occur, topography of the area, and similar considerations.

The presence of cultural resources at any specific location cannot be determined without an intensive pedestrian survey. Such surveys will be required and conducted under regulation 36 CFR Part 800. However, even if cultural resources are found at or near a proposed oil and gas development area, many such resources can be avoided with relatively small adjustments in facility locations. Many sites, whether historic or prehistoric, are small, much smaller than the provision in BLM's Standard Lease Terms for movement of proposed facilities by up to 200 meters if sensitive resources are identified.

Direct and indirect impacts to heritage resources can sometimes be reduced to below the level of significance through mitigation. For instance, where a heritage resource is eligible for the National Register due to its informational content, the implementation of a data recovery program may reduce the impact below the level of significance. This is usually done by partially excavating the site, using methodologies defined in a reviewed and approved research design. Although information is retrieved from the site in this process, the impacts to the site are irreversible.

Data recovery is not an effective mitigation for all sites. Certain sites are considered significant for reasons other than their scientific informational value. Sites associated with significant events or persons or which embody distinctive characteristics cannot have direct impacts mitigated merely through data collection. In these cases, memoranda of agreement stipulating other types of mitigation measures must be developed and signed before a proposed action can proceed. Mitigation of possible indirect impacts must also be considered at these sites. Indirect impacts to cultural resources include an increase in illegal collection of artifacts and possible vandalism to rock art or standing structures, resulting from increased access.

In summary, the study area has a rich inventory of both identified and undiscovered heritage resources, both in quantity and in complexity. Prior to approval of any additional oil and gas leases and exploration, detailed cultural resource surveys and studies will be required in the vicinity of all specific locations of proposed oil and gas activities and facilities. Such studies will address the full range of potential heritage resources, including prehistoric, historic and Native American sacred sites. Potential significant impacts to any National Register-eligible sites or areas will be adequately mitigated, either through avoidance, data collection studies, or other measures. No legally available portion of the study area should be precluded from oil or gas exploration on the basis of cultural resources. However, it should be noted in any permits that are granted, that if significant cultural resources are identified, some oil and gas development activities may be relocated or restricted based on existing federal regulations and policies to protect heritage resources.

The following Information Notice will be made a part of all leases to ensure that the lessee is aware of the requirement to protect cultural resources and the impact that these resources may have on the opportunity to conduct ground disturbing operations.

*“Prior to any ground-disturbing activities, a cultural resource inventory covering the area of proposed area of effect/disturbance will be conducted. Mitigation measures necessary to protect any and all cultural resources will be taken by the lessee/operator. Mitigation may include the relocation of the proposed activity, testing, salvage, or recordation or other protective measures. If these measures would not be effective in protecting the cultural values present, then no surface occupancy of the lease area would be allowed.”*

#### **4.5.1.2 Effects Common to All Alternatives**

Protection of cultural resources under all alternatives will continue to be accomplished through enforcement of BLM’s Standard Lease Terms (which provide that the “lessee shall conduct operations in a manner that minimizes adverse impacts...”), in conjunction with the cultural resource regulations detailed in 36 CFR Part 800. Detailed surveys and evaluations of heritage resources in the areas under consideration for any ground disturbance would be conducted as part of the NEPA-mandated environmental analysis prior to development decisions. If significant impacts to heritage resources are projected as a result of any proposed oil and gas activities, either mitigation measures to reduce such impacts to less than significant levels will be incorporated into the project description, or approval will be denied. With utilization of these procedures, and application of current laws and regulations protecting heritage resources, as well as the Information Notice listed above, no significant impacts to heritage resources will result from implementation of any alternative.

#### **4.5.1.3 Cumulative Impacts**

The Forest Plan and the associated EIS (1988) foresees improvement in heritage resource condition over time as a result of increased levels of heritage resource management activities (inventories, evaluations, protection, interpretation and enhancement). However, adverse impacts to heritage resources are expected to continue as a result of wildfires, prescribed burns, general forest recreation, and grazing. To the extent that oil and gas development projects result in impacts to heritage resources, these impacts will accumulate along with impacts from other

Forest activities. If there is no impact at all to heritage resources, cumulative impacts will not increase. Or, if there are some non-significant project impacts, cumulative impacts could be avoided, minimized or counter-balanced through project-aided heritage resource enhancement activities.

#### **4.5.1.3.1 Archaeological and Historic Resources**

Potential cumulative impacts associated with oil and gas development include the potential for increased site vandalism or removal of artifacts where vehicular access is increased through construction of new access roads for oil and gas equipment. Also, if data recovery prior to oil and gas development is recommended to mitigate for anticipated project impacts, this does not mitigate all impacts. There is an irretrievable loss of site integrity, and the potential loss of information that might be available using future investigation techniques. Whether this will occur or not, cannot be known until the environmental assessment of the specific oil and gas proposal is completed.

#### **4.5.1.3.2 Native American Sacred Sites And Areas**

It is possible that, even if significant impacts to such areas are avoided by oil and gas project facilities, the integrity of locations sacred to Native Americans may be compromised in a cumulative way by the effects of the oil and gas project(s) combined with prior and ongoing effects of other modern activities in the Forest. Whether this will occur or not cannot be known until the environmental assessment of the specific oil and gas proposal is completed.

### ***4.5.1.4 Forest Plan Consistency***

All four alternatives are consistent with provisions of the Forest Plan. That is, under all of the alternatives:

*“All project impact areas will be inventoried prior to implementation to allow identification, protection, and mitigation of any significant cultural properties. The consultation process mandated by Federal regulations (36 CFR 800) will be completed early in the planning for individual projects.”*

## **4.5.2 Socioeconomics / Growth**

### ***4.5.2.1 Introduction***

Socioeconomic effects derive from a project's requirements for human resources, capital and land. Mobilization and utilization of workers, manufacturers, service-providers and other economic and social institutions affects production and consumption. This could cause changes in jobs, incomes, location of human activity and induce growth. The areas of LPNF where further oil and gas leasing is being considered are located in portions of Kern, Los Angeles, Ventura, Santa Barbara, San Luis Obispo and Monterey Counties as shown on the map in Figure 3-4. It is these counties that comprise the project region/study area for this socioeconomic



impact analysis. Projection for reasonably foreseeable oil and gas development only includes the HOGPAs. No oil and gas activities are projected for Kern and Los Angeles Counties since these counties contain no HOGPAs.

As discussed in Chapter 2, there are four primary and four additional alternative oil and gas exploration and development scenarios, whose principal distinguishing characteristics are the lands leased, mitigating stipulations, and projected amount of reasonably foreseeable oil and gas development.

Alternative 1, the No Action/No New Leases scenario, under which no new leasing activities would occur, is the basis for the description of the LPNF study area's socioeconomic setting presented in Chapter 3. This section projects the changes in local socioeconomic characteristics that are likely to occur as a result of the alternatives.

The alternatives have varying levels of projected oil and gas development activities in the counties comprising the study area. Table 4-34 shows the number of new wells drilled each year by county for each of the alternatives. Kern and Los Angeles Counties are not displayed since no oil and gas activities are projected there in the RFD.

Alternative 2 is the maximum disturbance case since it involves the most well field development (151 wells) and mobilization of social and economic resources. Other action alternatives impacts on the socioeconomic setting would be less than Alternative 2's because they would involve fewer new wells and related infrastructure and support activities. Alternative 1 actually calls for 21 wells to be drilled, but from existing leases, so it is characterized as the minimum case. Alternatives 3 and 5 and Alternatives 4a and 5a are shown together since their respective RFD projections are the same. The scale of these activities, particularly in the case of Alternative 2, the maximum development case, varies substantially from county to county, which has implications for the scope of the socioeconomic impact assessment.

As was noted in Chapter 3, this disparity of impact-causing activities among the study area counties argues for a minimal analytical effort for San Luis Obispo and Monterey Counties, simply because, from a socioeconomics standpoint, the regional effects of mobilizing manpower and technical resources to drill and produce only one or two wells are negligible. While it is mathematically possible to quantify the employment and income effects of the application over a few weeks of a couple of hundred thousand dollars' worth of capital and human resources, the significance of the analysis pales in the face of the fact that the socioeconomic magnitudes of San Luis Obispo and Monterey Counties are measured in the hundreds of thousands of residents and jobs and billions of dollars of personal income and industrial output. Potentially more substantial would be the effects of the proposed leasing actions in Ventura and Santa Barbara Counties, where the logistics of constructing and supporting a relatively larger number of wells and associated infrastructure might have noticeable effects on the local communities and the regional economy. For these reasons, the discussion of regional impacts will be focused on Ventura and Santa Barbara Counties.

TABLE 4-34: NEW WELLS DRILLED BY COUNTY BY YEAR BY ALTERNATIVE.....

County	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	Total
<b>Alternative 1</b>									
Monterey									0
San Luis Obispo									0
Santa Barbara	1	2	1						4
Ventura	4	2							6
Total	5	4	1						10
<b>Alternative 2</b>									
Monterey				2					2
San Luis Obispo				2					2
Santa Barbara	12	14	15	7					48
Ventura	22	26	19	11	8	6	4	3	99
Total	34	40	34	22	8	6	4	3	151
<b>Alternative 3 or 5</b>									
Monterey									0
San Luis Obispo			1	1					2
Santa Barbara	8	8	11	7	5				39
Ventura	5	7	5	5					22
Total	13	15	17	13	5				63
<b>Alternative 4</b>									
Monterey									0
San Luis Obispo			1	1					2
Santa Barbara	8	8	9	7					32
Ventura	5	7	5	5					22
Total	13	15	15	13					56
<b>Alternative 4a or 5a</b>									
Monterey									0
San Luis Obispo			1	1					2
Santa Barbara	1	2	2	1					6
Ventura	5	7	5	5					22
Total	6	9	8	7					30
<b>New Preferred Alternative</b>									
Monterey									0
San Luis Obispo									0
Santa Barbara	1	2	1	1					5
Ventura	5	6	5	4					20
Total	6	8	6	5					25

In order to assess the social and economic impacts of the alternatives it is first necessary to identify the activities that produce impacts. Table 4-35 presents the alternative scenarios for drilling of wells and construction of support facilities, and their associated costs. Along with drilling of wells, there would be investments in exploration in some fields and construction of access roads and, in some cases, pipelines to connect wells to existing oil or gas collection systems. Because site conditions vary among the fields, costs vary widely. Some fields would

require deeper wells, which would also cause total costs to vary. The second and third columns in these tables show the grand total and average costs per well for each HOGPA.

Alternative 1, the No Action No New Leasing (minimum) development scenario specifies ten wells to be drilled, with six in Ventura County and four in Santa Barbara County, all from existing leases. Total costs of Alternative 1 are estimated at \$20.3 million. Under Alternative 2 (the maximum development scenario) a total of 151 wells would be drilled: 99 would be in Ventura County, 48 would be in Santa Barbara County, and two more would be drilled in each of San Luis Obispo and Monterey Counties. Alternative 2 would cost an estimated \$107.3 million.

Alternative 2, with 151 wells, is the maximum development alternative case. Its impacts define the maximum extent of potential socioeconomic effects from the proposed leasing. Of interest is whether these impacts extend over thresholds where mitigating measures might be indicated to alleviate or avoid an unacceptable impact. Alternative 2 overshadows all other alternatives in the amount of development. So, it is only in instances where the possible impacts of Alternative 2 might threaten the socioeconomic stability or integrity of a locale that attention need be given to evaluating whether one or another of the other alternatives might also require mitigation.

As can be seen in Table 4-34, under Alternative 2, drilling in Ventura County would extend over a period of eight years, while in Santa Barbara County the wells would be completed in four years. The two wells in each of San Luis Obispo and Monterey Counties would be completed within just one year.

In contrast, Alternative 1's ten wells would be drilled within a three-year period, while in Alternatives 3 and 4, the drilling would range from two to a maximum of five years among the various counties. (Rancho Energy Consultants, Inc., 1997)

Alternative 3 calls for 63 wells to be drilled; its total cost would be approximately \$46.9 million. Twenty-two wells would be drilled in Ventura County, another 39 in Santa Barbara County, and two more in San Luis Obispo County (none in Monterey County). Alternative 4 calls for a total of 56 wells: 22 in Ventura County, 32 in Santa Barbara County, while only two would be drilled in San Luis Obispo County and none would be drilled in Monterey County. Alternative 4 would cost around \$40.6 million to implement. (Rancho Energy Consultants, Inc., 1997)

TABLE 4-35: ESTIMATED EXPLORATION AND DEVELOPMENT COSTS BY ALTERNATIVE, HOGPA, AND COUNTY

Alternative	HOGPA/County	Wells	Total Cost \$'s x 1,000	Average Cost per Well \$s x 1
<b>1</b>	San Cayetano	1	800	800,000
	Sespe	5	3,525	705,000
	<b>Subtotal Ventura Co.</b>	<b>6</b>	<b>4,325</b>	<b>720,833</b>
	<b>Subtotal. Santa Barbara Co.</b>	<b>4</b>	<b>4,000</b>	<b>1,000,000</b>
	<b>Total Alternative 1</b>	<b>10</b>	<b>8,325</b>	<b>832,500</b>
<b>2</b>	Piedra Blanca	8	2,040	255,000
	San Cayetano	39	30,377	778,897
	Sespe	49	35,696	728,490
	Rincon Creek	3	708	236,000
	<b>Subtotal Ventura Co.</b>	<b>99</b>	<b>68,821</b>	<b>695,162</b>
	South Cuyama	41	36,586	892,341
	La Brea Canyon	5	923	184,600
	Figueroa Mountain	2	448	224,000
	<b>Subtotal. Santa Barbara Co.</b>	<b>48</b>	<b>37,957</b>	<b>790,771</b>
	<b>Lopez Canyon (SLO Co.)</b>	<b>2</b>	<b>338</b>	<b>169,000</b>
	<b>Monroe Swell (MRY Co.)</b>	<b>2</b>	<b>225</b>	<b>112,500</b>
<b>Total Alternative 2</b>	<b>151</b>	<b>107,341</b>	<b>710,868</b>	
<b>3 or 5</b>	San Cayetano	6	4,321	720,167
	Sespe	14	9,862	704,429
	Rincon Creek	2	440	220,000
	<b>Subtotal Ventura Co.</b>	<b>22</b>	<b>14,623</b>	<b>664,682</b>
	South Cuyama	35	31,121	889,171
	La Brea Canyon	3	585	195,000
	Figueroa Mountain	1	260	260,000
	<b>Subtotal. Santa Barbara Co.</b>	<b>39</b>	<b>31,966</b>	<b>819,641</b>
	<b>Lopez Canyon (SLO Co.)</b>	<b>2</b>	<b>330</b>	<b>165,000</b>
	<b>Total Alternative 3</b>	<b>63</b>	<b>46,919</b>	<b>744,746</b>
<b>4</b>	San Cayetano	6	4,321	720,167
	Sespe	14	9,862	704,429
	Rincon Creek	2	440	220,000
	<b>Subtotal Ventura Co.</b>	<b>22</b>	<b>14,623</b>	<b>664,682</b>
	South Cuyama	28	24,821	886,464
	La Brea Canyon	3	585	195,000
	Figueroa Mountain	1	260	260,000
	<b>Subtotal. Santa Barbara Co.</b>	<b>32</b>	<b>25,666</b>	<b>802,063</b>
	<b>Lopez Canyon (SLO Co.)</b>	<b>2</b>	<b>330</b>	<b>165,000</b>
<b>Total Alternative 4</b>	<b>56</b>	<b>40,619</b>	<b>725,339</b>	
<b>4a or 5a</b>	San Cayetano	6	4,321	720,167
	Sespe	14	9,862	704,429
	Rincon Creek	2	440	220,000
	<b>Subtotal Ventura Co.</b>	<b>22</b>	<b>14,623</b>	<b>664,682</b>
	South Cuyama	5	4,432	886,464
	Figueroa Mountain	1	260	260,000
	<b>Subtotal. Santa Barbara Co.</b>	<b>6</b>	<b>4,692</b>	<b>782,053</b>
<b>Lopez Canyon (SLO Co.)</b>	<b>2</b>	<b>330</b>	<b>165,000</b>	
<b>Total Alternative 3</b>	<b>30</b>	<b>19,645</b>	<b>654,844</b>	
<b>Preferred</b>	San Cayetano	6	4,321	720,167
	Sespe	14	9,862	704,429
	<b>Subtotal Ventura Co.</b>	<b>20</b>	<b>14,183</b>	<b>709,150</b>
	<b>South Cuyama Santa Barbara Co.</b>	<b>5</b>	<b>4,432</b>	<b>886,464</b>
	<b>Total New Preferred Alternative</b>	<b>25</b>	<b>18,615</b>	<b>744,613</b>

Source: Rancho Energy Consultants, Inc., 1997.

#### 4.5.2.2 *Socioeconomic Effects Common to All Alternatives*

All alternatives would create increases in economic activity in the study area counties. The magnitudes of the effects would vary with the intensity and duration of exploration and development activities, but upon completion of work their effects would dissipate, leaving the local economies essentially at their pre-project levels of employment, output and income. Production of hydrocarbons would continue to generate some additional local income and employment from well operation and maintenance activities and payment of royalties, but the dollar amounts would be relatively small and of little significance to local jurisdictions.

The IMPLAN Pro™ economic input-output model was used to estimate the project's socioeconomic impacts. The model was configured to project changes in employment, total industry output (equals total sales), total personal income, employee compensation and indirect business taxes (principally sales and property taxes) per million dollars of direct expenditure on oil and gas exploration and development. Table 4-36 presents the coefficients for each of these parameters in each of the LPNF study area counties. Reviewing the table, the first band of data indicates the value of output (i.e., value of final sales) of all economic entities in each of the LPNF study area counties. For example, for each one million dollars' worth of direct spending by lessees on oil and gas exploration and development activities in Ventura County another \$913,711 worth of additional output would be stimulated among suppliers of goods and services to the well field activities (designated as "indirect" effects) and among retail trade and other service providers selling to employees of the direct and indirect businesses (designated as "induced" effects). Thus the total impact of a million dollars' worth of direct spending in Ventura County would be a \$1,913,711 increase in total output, implying an output multiplier of 1.91. A million dollars' worth of direct spending in Santa Barbara county oilfields would generate a slightly lower value of total output--\$1,824,836—due to the county economy's industrial base not being as broadly developed as Ventura County's.

The principal component of total output is total personal income, of which, in turn, employee compensation is the main subcomponent. Other components of personal income include proprietors' earning and returns to capital (corporate profits). Indirect business taxes are mainly sales and use taxes on taxable goods and services sold to the project and workers (of which most would go to the state government because it keeps 6 of the 7+ cents collected on every dollar's worth of sales taxes).

Finally, the employment effects are presented in the bottom band of data. The IMPLAN Pro model's data base for the study area counties contains the estimated numbers of direct workers for the oil and gas well construction and maintenance sector, based on economic census data. Oil and gas development in Ventura County generates 17.5 worker-years of direct labor in the industry for each \$1 million of direct spending. That spending, as it works through the local economy in the form of project and worker-related purchases of goods and services, generates 11.2 additional full-time equivalent jobs in the county. Effectively, the spending that generates each direct job on the project generates another 0.64 indirect and induced jobs throughout the

rest of the local economy, for an employment multiplier of 1.64. The majority of the indirect and induced jobs are in the trade and services sectors, with retailing and business and personal services receiving most of the stimulus.

It might be noted that the multipliers for Ventura County are in all parameters the largest among the counties. This reflects the fact that Ventura County has the most extensively developed oil and gas support sectors among the study area counties. Its enterprises are able to capture a higher share of the direct and indirect spending on oil and gas development, so more of the money stays within the Ventura County economy and more business and jobs are generated for a given amount of direct spending.

These multiplier effects would occur in all the alternatives, but the magnitudes would differ significantly among the cases. These differences are now discussed in the following subsection.

#### **4.5.2.3 *Effects of Each Alternative***

As noted earlier, Alternative 2 is the maximum impact case, involving the largest outlays of capital and, accordingly, generating the largest income, output and employment effects. We shall initiate the assessment with Alternative 2 to establish the boundary conditions for socioeconomic impacts resulting from leasing oil and gas exploration and development sites within Los Padres National Forest. The focus will be on the years with the largest number of wells to be drilled, since these would be the periods of greatest potential impact on communities in the vicinities of the sites. Then we shall determine whether or to what extent mitigating measures might be called for to alleviate or avoid unacceptable adverse impacts on local areas. Then we will determine whether or to what extent the other alternatives might require mitigation.

##### **4.5.2.3.1 Alternative 2 – Emphasis on Oil and Gas Development**

The schedule of well field activities projects drilling a maximum of 26 wells in Ventura County fields (in the year 2005) and 15 wells in Santa Barbara County fields (in 2005). Costs for drilling the peak year number of wells in Ventura County are projected at \$19,848,000, while the peak number in Santa Barbara County is projected to cost a total of \$11,262,000. Two wells each would be drilled in San Luis Obispo and Monterey Counties (in 2005), which would entail expenditures of, respectively, \$338,000 and \$225,000.

Referring to the table of IMPLAN model coefficients above, the peak year spending in Ventura County would generate the following changes in employment, output and income:

- 348 direct oil and gas jobs and another 222 indirect and induced jobs in other sectors;
- \$38.0 million in total output (all sectors);
- \$20.3 million in personal income (of which \$17.4 million would be salaries and wages); and,
- \$1.27 million in indirect business taxes.

In Santa Barbara County the peak year spending of \$11.26 million would generate the following increases in economic activity:

- 215 direct oil and gas jobs and another 120 indirect and induced jobs in other sectors;
- \$20.6 million in total output (all sectors);
- \$11.2 million in personal income (of which \$9.6 million would be salaries and wages); and,
- \$0.66 million in indirect business taxes.

TABLE 4-36: IMPLAN MODEL COEFFICIENTS FOR LPNF OIL &amp; GAS LEASING ACTIVITIES

Parameter	Ventura	Santa Barbara	San Luis Obispo	Monterey
values in dollars per million \$ of direct expenditure; employment in jobs				
<b>Industry Output</b>				
Direct	1,000,000	1,000,000	1,000,000	1,000,000
Indirect/Induced	913,711	824,836	804,402	709,264
Total	1,913,711	1,824,836	1,804,402	1,709,264
Multiplier	1.91	1.82	1.80	1.71
<b>Personal Income</b>				
Direct	705,594	705,704	715,609	707,460
Indirect/Induced	315,066	285,753	264,981	244,876
Total	1,020,660	991,457	980,590	952,336
Multiplier	1.45	1.40	1.37	1.35
<b>Employee Compensation</b>				
Direct	614,661	614,187	571,444	606,609
Indirect/Induced	261,968	235,886	210,006	202,403
Total	876,629	850,073	781,450	809,012
Multiplier	1.43	1.38	1.37	1.33
<b>Indirect Business Taxes</b>				
Direct	0	0	0	0
Indirect/Induced	63,802	58,854	63,081	53,189
Total	63,802	58,854	63,081	53,189
Multiplier	[inf.]	[inf.]	[inf.]	[inf.]
<b>Employment (full time equivalent jobs)</b>				
Direct	17.5	19.1	22.0	14.8
Indirect/Induced	11.2	10.7	11.2	9.1
Total	28.7	29.8	33.2	23.9
Multiplier	1.64	1.56	1.51	1.61

Sources: Minnesota IMPLAN Group, Inc. (1997) and Robert T. Mott (1997).

In terms of countywide economic aggregates, these numbers are not significant. Referring to the Chapter 3 analysis of existing levels and trends of economic activity in the study area counties, in Ventura County in 1995 the mining sector (which is almost totally dominated by the oil and gas industry) had total earnings of more than \$130 million and employed nearly 3,000 workers. Santa Barbara County's mining sector earned \$78 million in 1995 and employed nearly 1,700 workers. Therefore, the peak year staffing requirements for Alternative 2 in these counties would represent an increment of between 10 and 15 percent of the existing mining sector workforces in the two counties. The staffing needs would not be incremental, however. Oil and gas wells take a few weeks to several months to drill and complete, depending on depth and site conditions, and then the crews move on to the next contract. Simple turnover of personnel as wells are completed and contractors move on to the next opportunity would release at any given point in time sufficient workers to staff the LPNF leases. It is highly unlikely that the National Forest leases would require any recruiting of workers from outside the region to fill their peak year staffing needs.

By the same token, the two wells that would be drilled in each of San Luis Obispo and Monterey Counties would have virtually no impact on the local economies. One crew could complete each of the jobs in a few weeks, which would have no distinguishable impact on countywide employment and income levels.

Since the socioeconomic impacts on all counties of Alternative 2 are not significant, the impacts of all the other alternatives would also not be significant since each involve substantially less oil and gas activity than Alternative 2. It is also concluded there would be no significant growth inducement as a result of any of the alternatives.

The majority of the development projected for Santa Barbara County would occur in the South Cuyama HOGPA. Although the wells would be in Santa Barbara County the area is adjacent to Kern County which has a substantial oil and gas development. As a result it is as likely or perhaps more likely that development in the South Cuyama HOGPA would be supported from Kern County. Since Kern County has a larger population than Santa Barbara, even if all the socioeconomic impact occurred there, it would be less than in Santa Barbara County which is projected to be insignificant.

The IMPLAN input-output model was run on data that is now dated. However, as shown in Table 4-37 there has been growth in all the study area counties from 1980 through 2000. Since the reasonably foreseeable amount of oil and gas development projected to occur has not increased under any alternative, the effects, already projected not to be significant, would be even less significant since the market sectors are larger.

It cannot be concluded that development of the leases could not have some localized socioeconomic impacts. Some communities in the immediate vicinity of one or another lease might experience some locally significant impacts from movements of equipment, supplies, personnel and crude oil tanker trucks. It is also possible that workers might seek transient housing accommodations in lease areas necessitating commutes of more than an hour or two from their homes. These potential impacts are discussed under sections 4.5.3 Social Impacts and



## 4.5.4 Access/Traffic below.

TABLE 4-37: POPULATION IN STUDY AREA COUNTIES 1980 - 2000

County	Decade		
	2000	1990	1980
Kern	661,645	543,477	403,089
Los Angeles	9,519,338	8,863,164	7,477,503
Monterey	401,762	355,660	290,444
San Luis Obispo	246,681	217,162	155,435
Santa Barbara	399,347	369,608	298,694
Ventura	753,197	669,016	529,174

source: California State Department of Finance Demographic Research Unit; 2005

### 4.5.3 Social Impacts

Forest neighbors consist of private properties within and adjacent to LPNF, as well as and private property and communities in close proximity to LPNF.

#### 4.5.3.1 *Private Property and Neighboring Communities*

Neighboring private property can be negatively or positively impacted by additional oil and gas leasing on neighboring LPNF lands. The site, sounds, odor, air pollution, traffic, risk of spills from oil and gas development all present potentially significant impacts. These activities can also impact the sense of place and property values. Noise, air quality, traffic, and risk of spills are all covered in other sections. Oil and gas development on neighboring LPNF lands can also have a positive economic effect on private properties. The property can possibly be of value to the oil and gas development for roads, transmission lines and well pads for slant drilling into neighboring NSO areas on LPNF.

It is not feasible at this level in the process to determine specific impacts to specific properties. That is more appropriately done once leases are sold and lessees propose their plans of operation. At this stage the potential for such impacts can only be based on the proximity to HOGPAs and the amount of reasonably foreseeable activity in the HOGPAs under the various alternatives as discussed below.

##### 4.5.3.1.1 Alternative 1: No Leasing

The only additional oil and gas activities under Alternative 1 are within the existing lease areas consisting of:

- *one new well in the San Cayetano area,*
- *five new wells in the Sespe area, and*
- *four new wells in the South Cuyama area.*

The wells in the San Cayetano and Sespe areas are projected to be on existing well pads so no private property impacts are expected. The four new wells in the South Cuyama area would be on existing leases but not on existing well pads. The existing leases consist of several separate parcels. Two of these parcels are within the South Cuyama oil field completely surrounded by oil and gas development. So no impacts to private property are expected there. The other parcels are along the border of LPNF and could experience impacts described above depending on site-specific location and plans of operation.

#### **4.5.3.1.2 Alternative 2: Emphasis on Other Resource Values**

Alternative 2 has the largest reasonably foreseeable oil and gas development projected and the minimum in mitigation measures compared to the other alternatives. As a result it is expected to have more impacts to private property compared to the other alternatives. All HOGPAs are expected to have oil and gas activities and all have private properties within, adjacent, or in close proximity.

Without site-specific plans of operations it isn't feasible to assess whether impacts to private properties would be significant or not. However, the potential for impact is greater the larger the projected development for the HOGPAs. As a result the greatest potential for impact would be in the San Cayetano, Sespe, and South Cuyama HOGPAs.

#### **4.5.3.1.3 Alternative 3: Current Forest Plan Direction**

The mitigating stipulations in Alternative 3 either prohibit or limit surface occupancy on LPNF lands that are only constrained by BLM SLTs in Alternative 2. As a result, the amount of oil and gas activities is significantly reduced compared to Alternative 2. The reduced activity should result in less potential for impact to private property. The prohibited and limited access to LPNF land may increase the demand to utilize private lands for oil and gas operations where the oil and gas resource under LPNF can be accessed by slant drilling from adjacent private property.

Without site-specific plans of operations it isn't feasible to assess whether impacts to specific parcels of private properties would be significant or not or even occur. However, the potential for impact is greater the larger the projected development for the HOGPAs. The RFD projection shows no development in the Piedra Blanca and Monroe Swell HOGPAs, so no private property impacts would occur in and around those HOGPAs. The Lopez Canyon HOGPA is only projected for two wells but both are anticipated to be on private property. The RFD projections for the San Cayetano and Sespe HOGPAs are significantly reduced in Alternative 3 due to the amount of NSO stipulation applied. This should increase demand to access the oil and gas resource from private lands adjacent to those HOGPAs.

#### **4.5.3.1.4 Alternative 4: Emphasis on Oil and Gas Development**

Additional mitigating stipulations in Alternative 4 further prohibit or limit surface occupancy on LPNF lands compared to Alternative 3. There is a reduced amount of LPNF lands under BLM SLTs in Alternative 4 in the South Cuyama HOGPA. As a result, the amount of oil and gas

activities is slightly reduced in the South Cuyama HOGPA. This should result in slightly increased demand to utilize private property bordering the HOGPA for slant drilling pad sites.

#### **4.5.3.1.5 Alternative 4a – Alternative 4 with Roadless Area Conservation Emphasis**

Alternative 4a is the same as Alternative 4 except all of the IRAs are under the NSO stipulation. The RFD projections for mean oil expected are very similar (17.3 million barrels to 17.4 million barrels). However the acres of LPNF impacted is reduced to zero in the La Brea Canyon HOGPA and greatly reduced in the South Cuyama HOGPA. The one projected well in the La Brea Canyon HOGPA in Alternative 4 is eliminated so there are no projected private property impacts there.

The major difference for Alternative 4a (and 5a) is in the access to the oil and gas resource in the South Cuyama HOGPA. 81% of the oil and gas resource access is projected to be from adjacent private lands since roughly 90% of the South Cuyama HOGPA is in Inventoried Roadless Areas where either no lease or no surface occupancy is allowed.

Table 4-38 shows RFD projections for LPNF and private lands for the South Cuyama HOGPA for alternatives 4a and 5a and compares them with those for alternatives 4 and 5.

#### **4.5.3.1.6 Alternative 5: Combination of Alternatives 3 and 4.**

Alternative 5 is a combination of Alternative 3 in the HOGPAs and Alternative 4 in the non-HOGPA area. Alternative 4 biological stipulations apply in the HOGPAs as well as the non-HOGPA. In addition, areas that would otherwise be NSO are not leased (NL) if they cannot be reached by conventional slant drilling. This removes 16,015 acres from the lease area for Alternative 5. Since the RFD projects no reasonably foreseeable oil and gas activities in the non-HOGPA, there are no projected impacts to private property there.

Since the RFD projections for Alternative 5 are the same as Alternative 3 the private land impacts would be the same.

TABLE 4-38: COMPARISON OF LPNF VERSUS PRIVATE PROPERTY DEVELOPMENT SOUTH CUYAMA HOGPA FOR ALTERNATIVES 4, 4A, 5, AND 5A

South Cuyama HOGPA	Number of New Wells Estimated				Additional Amount Surface Disturbance Estimated			Additional Acres of Surface Disturbance Estimated		Additional Mean Oil Expected (MMBOE)
	Dry	Produce	Inject	Total	# of Pads	Roads (miles)	Pipelines (miles)	Initial	After Rehab.	
Alternative(s) - well location										
4a or 5a - LPNF	1	4	0	5	1	0.0	1.0	3.0	3.0	2.6
4a or 5a - Private	1	19	2	22	3	1.0	1.0	12.0	9.0	11.4
4a or 5a - Total	2	23	2	27	4	1.0	2.0	15.0	12.0	14.0
4 - all LPNF	2	24	2	28	4	2.0	2.0	19.5	14.0	14.0
5 - all LPNF	2	30	3	35	5	2.0	2.0	21.5	14.0	18.0

#### **4.5.3.1.7 Alternative 5a – Alternative 5 with Roadless Area Conservation Emphasis**

Alternative 5a is Alternative 5 but with all IRAs under the no surface occupancy stipulations (NSO). If the resultant NSO areas cannot be reached by current slant drilling techniques the area otherwise in NSO is not leased (NL). This removes 62,176 acres of the area being offered for lease. The effects of the IRAs being allocated to either NSO or NL in both Alternatives 4a and 5a override the other differences between Alternatives 4 and 5 to the extent that Alternatives 4a and 5a are very similar and the RFD projections are the same. Consequently, the private property impacts of Alternative 5a are essentially the same as Alternative 4a.

#### **4.5.3.1.8 New Preferred Alternative**

When compared with Alternative 5a, the New Preferred Alternative would eliminate all impacts on private land associated with development of six HOGPAs (Piedra Blanca, Rincon Creek, La Brea Canyon, Figueroa Mountain, Lopez Canyon, and Monroe Swell) since these HOGPAs are not leased in the New Preferred Alternative. Any private land impacts associated with development in the San Cayetano, Sespe, and South Cuyama HOGPAs would remain.

### **4.5.3.2 *Noise***

This section deals with noise considerations primarily for residential uses such as single-family homes, farmsteads and ranch houses. The effects of noise on biological and recreation resources are addressed under other sections of this document.

It is not feasible to do site-specific noise analysis without plans of operation. Noise attenuates with distance and topography. The specific location of oil and gas development activities, sensitive receptors, intervening terrain, and other factors simply are not known at this time. Since noise attenuates with distance.

Only a limited comparison of noise impacts for the various alternative leasing scenarios can be made at this stage of analysis. Alternative 2 has the greatest amount of oil and gas activity projected. Consequently, Alternative 2 would be expected to have greater noise impacts than the other alternatives. Likewise, Alternative 1 has the least amount of activities projected and could be expected to result in the least noise impacts. Alternatives 3, 4, and 5 would be expected to have similar noise impacts that would be greater than Alternative 1. Alternatives 4a and 5a are projected to have essentially the same oil and gas activity, more than Alternative 1 but less than alternatives 3, 4, and 5. However, alternatives 4a and 5a are likely to result in more off-forest development, which would have a higher likelihood of being closer to sensitive human noise receptors. The New Preferred Alternative would have noise impacts associated with development in the San Cayetano, Sespe, and South Cuyama HOGPAs. Impacts to the sensitive noise receptors listed in Section 4.5.3.2.3 would be eliminated except for the impacts associated with the San Cayetano HOGPA.

The discussion on the following pages identifies criteria that can be used to identify significant acoustical impacts associated from oil and gas development and/or operation once the necessary

specificity is known. Mitigation under Standard Lease Terms is discussed. The section also identifies sensitive receptors that may be impacted.

#### **4.5.3.2.1 Significance Criteria**

The following criteria apply to residential areas, hospitals and schools. The U.S. Environmental Protection Agency (EPA) set 55 dB(A) as the yearly average outdoor limit for residential areas, hospitals and schools. Several county governments also use 55 dB(A) or ranges encompassing that level as a criterion for residential area noise levels in daytime, including Ventura County, Monterey County, and Kern County. Santa Barbara County uses a higher (65-dB[A]) level for oil drilling operations in residential areas, while Kern County uses a 45-dB(A) standard for rural residences. In addition, if the ambient sound level in a residential area is 51.7 dB(A) or above, an additional 55-dB(A) sound associated with oil and gas development will result in a less than 5-dB change in overall sound levels, a change not considered significant by either EPA or the International Standards Organization (ISO). In this analysis, we considered oil or gas project daytime (7:00 a.m. to 7:00 p.m.) sound levels of greater than 55 dB(A) at residential uses as significant impacts if they persist for more than one week.

The U.S. Department of Housing and Urban Development (HUD) allows noise levels in sleeping quarters to exceed 45 dB(A) no more than 30 minutes from 11 p.m. to 7 a.m., and no more than 8 hours per day. A 45-dB(A) nighttime limit is consistent with county regulations in Ventura, Monterey and Kern County (for non-rural residences in Kern). Santa Barbara County allows oil and gas drilling operations in residential areas to generate nighttime sound levels of 50 dB(A) or below at the property line, while Kern County allows no nighttime noises above 50 dB(A)  $L_{dn}$ , or 40 dB(A) when considering the 10-dB(A) nighttime penalty. If the ambient nighttime sound level in a residential area is 41.7 or above, an additional 45 dB(A) from oil and gas development will result in a change less than 5 dB in overall sound levels. EPA and ISO consider such changes less than significant. Therefore, in this analysis, we considered oil or gas project nighttime sound levels of greater than 45 dB(A) at residential uses as significant impacts if they persist for more than one week. The one-week criterion was chosen because it represents a clearly temporary condition, such as construction activities, and will quickly be over. The criterion helps protect nearby residents or other sensitive receptors; if it hinders the oil development, lessees can either demonstrate through a site-specific acoustical analysis that the criterion will not be exceeded, or can provide appropriate mitigation.

#### **4.5.3.2.2 BLM Standard Lease Terms**

BLM Standard Lease Terms require operations to be conducted in a manner that minimizes adverse impacts to the land, air, water, cultural, biological, and visual elements of the environment, as well as other land uses or users. Relative to noise issues, this is interpreted to mean that lessees would site their wells as far as practicable from noise-sensitive land uses nearby, but at least 200 meters away. Also, if noise impacts are still possible even with that intervening distance, that lessees would utilize acoustical blankets to reduce drilling noise. Such blankets can result in sound level reductions of 10 dB (A). Thus, if a well was proposed for a location 100 feet from a residential property line, and then moved 200 meters farther away

(under BLM's Standard Lease Terms), the resultant sound level at the residential property line would be approximately 61.5 dB(A) (ACE calculation). Sound levels associated with earthmoving equipment necessary to prepare the well pad might be louder than this at times, if operating on the part of the well pad closest to the residence, but this would be only for a duration of several days or less, and then only during normal working hours.

Use of acoustical blankets during drilling could further reduce sound levels to approximately 51.5 dB(A). This would be below EPA guidelines for the yearly average limit in residential areas (55 dB[A]), but since the drilling continues around the clock for as long as a month, and people are more sensitive to nighttime noise, this would be problematic. HUD limits noise levels in sleeping quarters, with windows open, to exceed 45 dB(A) no more than 30 minutes during the 11 p.m. to 7 a.m. period, and less than 8 hours per day. Under the scenario described, those limits could be exceeded for a month if there was no intervening hill or ridge between the well site and the home(s), the lessee declined to use acoustical blanketing while drilling, and if the dwelling or dwellings were located closer than 840 feet to the property line, or the lessee declined to relocate the proposed well to farther than 1590 feet from the home(s).

#### **4.5.3.2.3 Sensitive Noise Receptors**

Sensitive noise receptors in close proximity to HOGPAs include:

- *two dwellings in Sec. 6 east of SR 33 and south of Forest road 6N06 [Piedra Blanca HOGPA];*
- *homes just west of the Forest boundary and 3-6 miles south of SR 166 [La Brea Canyon HOGPA];*
- *homes in the Birabent area west of Figueroa Mountain [Figueroa Mountain HOGPA];*
- *homes near Forest lands north of Montecito and Carpenteria [Rincon Creek HOGPA]*
- *homes near Forest lands north of the area from Ojai to Santa Paula [San Cayetano HOGPA]*

Other residential areas near or within the Forest are not in or near the HOGPAs. These areas should not be affected by drilling. Residential areas not near HOGPAs include Pine Mountain Club, Pinon Pines, Lake of the Woods, Frazier Park and the O'Neil Canyon development, all in Kern County; homes and ranches along Figueroa Mountain Road west of Figueroa Mountain and homes and ranches along Happy Canyon Road northwest of Lake Cachuma, both areas in Santa Barbara County; homes and ranches in Lockwood Valley (Ventura County); and homes in the Arroyo Seco and Jamestown areas of Monterey County.

There are also some non-Forest recreation areas that may be considered sensitive, including

- *the vicinity of Lake Piru [Sespe HOGPA]*
- *Lopez Lake Recreation area and reservoir east of San Luis Obispo [Lopez Canyon HOGPA]*
- *recreation area, cabins and restaurant at Zaca Lake [Figueroa Mountain HOGPA];*

It is possible that other individual homes, farmsteads and ranches fall within these conditions as well, and would increase the number of residences with significant localized noise impacts.

There are many parcels of privately held land surrounded by Los Padres National Forest lands. Most of those parcels are vacant, or used for grazing purposes, uses not considered particularly sensitive to temporary increases in ambient noise levels of the magnitude discussed here. However, some of these parcels could be developed for residential purposes in the period between preparation of this EIS, and commencing of oil or gas well development. To the extent that such development occurs, additional significant impacts will accrue to Alternative 2, and to a lesser extent to the other alternatives as well.

#### **4.5.3.2.4 Noise Sources**

##### **4.5.3.2.4.1 Access Road and/or Pipeline Construction**

The RFD scenario projects that one to five miles of road, and one to five miles of pipeline will need to be constructed in each of the HOGPAs. As the specific well site locations are not yet identified, and their proximity to the existing network of Forest and/or County roads is unknown, it is difficult to be precise about future acoustical impacts of road and/or pipeline construction under Alternative 2. Earthmoving equipment such as bulldozers and graders typically generate sound levels of 85 dB(A) at 50 feet while in operation<sup>1</sup>. This sound level would typically attenuate (in level terrain, or where there is a line-of-sight between the receptor and the source) to 55 dB(A) in approximately 0.3 mile, and to 45 dB(A) in less than a mile (ACE calculation). As with well-site noise, the presence of intervening hills or ridges will greatly reduce the distances needed for attenuation to such levels.

Table 4-39 summarizes projected project-related noise levels to several possible significance standards and the distance it could take for those levels to attenuate.

One factor that tends to reduce the significance of such acoustical changes is that the road-building or pipeline-laying operations are short-term, typically requiring a week or less per mile of road built or pipe constructed. Second, the construction work is not fixed in one location near a home or other sensitive receptor, but is continually on the move. If it is in front of a location today, it will likely be 1000 feet away tomorrow. Third, the construction activities would be performed during regular working hours of 7 a.m. to 5 or 6 p.m., and thus would not occur during the most sensitive nighttime hours.

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<sup>1</sup> EPA, Report to the President and the Congress on Noise, 1971; cited in The Impact of Noise Pollution: A Socio-Technological Introduction; George Bugliarello, Ariel Alexander, John Barnes and Charles Wakstein; Pergamon Press, Inc. 1976.

#### **4.5.3.2.4.1.1 Construction**

Construction traffic per well would average approximately ten round-trips per day, with most of those being construction workers in their own pickup trucks or automobiles. Ten round trips result in 20 trips to or from the site. Typical sound levels associated with individual cars or trucks are in the range of 68 dB(A) at 50 feet. Some of the trips would occur during the day, while perhaps one-third (or 7) would occur at night (since drilling will go on 24 hours per day). Sound levels of 68 dB(A) at 50 feet will attenuate to 45 dB(A) or less in 700 feet, if there are no acoustical barriers between the source and the receptor (ACE calculation).

A vehicle traveling at 15 miles per hour on a road passing a noise-sensitive receptor would go from 700 feet on one side of the receptor to 700 feet the other side in less than 32 seconds. If seven such trips were made during the sensitive nighttime hours, the total time for which HUD's 45-dB(A) nighttime standard would be exceeded would be less than four minutes, far less than the HUD standard of 30 minutes. Other considerations indicating that such construction traffic noise impacts will be less than significant are the varied topography of much of the study area, the unknown proximity of the roads construction traffic will follow relative to residential uses, and the one-year duration of the well development period.

#### **4.5.3.2.4.2 Operation**

As noted under "Operation" in the Chapter 3 discussion of noise, the engine driving the pumping mechanism, which operates 24 hours per day, emits the loudest sounds associated with an operating oil well. A typical engine with a muffler will generate sound levels of 71.7 dB(A) at 50 feet, which would decrease to 65.7 dB(A) if the well was 100 feet from a residential property line, and 48.2 dB(A) if the well site was moved 200 meters farther from the residence under provisions of BLM's Standard Lease Terms. While this sound level is slightly greater than HUD's sleeping quarter standard of 45 dB(A), it has been projected at the property line, and not the residence itself. Any combination of conditions which would increase the separation between the residence and the well site by 100 meters (such as 100 meters from the residential property line to the home, or the original proposed well site being located 100 meters plus 100 feet from the property line, would result in operational noise levels of less than 45 dB(A) perceived at the residence.

Other conditions which could result in noise levels below the HUD standard include the presence of intervening topographic barriers between the home and the well site (hill or ridge); a well shallower than 7,000 feet which could use a smaller, quieter engine; and availability of electricity to or near the site, with consequent use of an electric motor for pumping purposes. This latter is especially likely if the well site is near enough to one or more residences to pose a possible noise problem. If the residences are there, electric power may well be available.

Only one worker round trip per day will be required during well operation. Acoustical impacts of such travel are even less than those described above for construction traffic, and are clearly not significant.



#### 4.5.3.2.4.3 Hydraulic Fracturing

As noted in the Environmental Setting section, in some wells and in some geologic formations, hydraulic fracturing of the rock may be proposed after some years in order to enhance production. Although noise levels of such an operation are extremely high (up to 109 dB(A) at 50 feet), the operation would take only one to two days. Such sound levels would require approximately 4.75 miles to attenuate to 55 dB(A), assuming there were no intervening hills or mountains between the well site and the sensitive noise receptor (ACE calculation).

TABLE 4-39: RECOMMENDED NOISE STANDARDS

SENSITIVE AREAS		Residential areas (day)	Residential and recreation areas (night)	Forest dispersed rec. areas (night)	wilderness areas
<b>Recommended Standard:</b>		55 dB(A)	45 dB(A)	40 dB(A)	35 dB(A)
<b>Discussion:</b>		EPA set 55 dB(A) as the yearly average outdoor limit for residential areas, hospitals and schools; also, the 3 dB change of sound levels is not considered significant by EPA or ISO	HUD set limits on noise level in sleeping quarters; with windows open, it is not to exceed 45 dB(A) more than 30 minutes during 11pm to 7 am period, < 8 hours / 24-hour period. Change in level = 3 dB, not significant.	40 dB(A) L <sub>dn</sub> is typical of sound levels measured in rural residential areas; at the distances below, project sounds would increase existing sound levels 3 dB, a change not deemed significant by EPA or ISO.	35-40 dB(A) L <sub>dn</sub> is typical of sound levels measured in wilderness areas; at the distances below, project sounds would increase existing sound levels 3 dB, a change not considered significant by EPA or ISO.
<b>Construction noise (&lt; 1 year)</b>	If the source noise levels in (dB(A)) are...	noise is attenuated to 55 dBA at a distance of...	noise is attenuated to 45 dBA at a distance of ...	noise is attenuated to 40 dBA at a distance of ...	noise is attenuated to 35 dBA at a distance of...
Well site construction/ drilling	85 dB @ 50 feet; 1 wk./ <50 wks	1,580 ft. (0.3 mi.) combined → 58 dB(A)	5,020 ft. (.95 mi.); combined → 48 dB(A)	8,900 ft. (1.68 mi.); combined → 43 dB(A)	15,820 ft. (3 mi.); combined → 38 dB(A)
Road / Pipeline	85 dB @ 50 feet; 1 week	1,580 ft. (0.3 mi.) combined → 58dB(A)	5,020 ft. (.95 mi.); combined → 48 dB(A)	8,900 ft. (1.68 mi.); combined → 43 dB(A)	15,820 ft. (3 mi.); combined → 38 dB(A)
Constr. traffic (10 RTs)	typ. level = 68 dB(A) at 50 ft.	Pk sound level < 55 dB(A) at 225 ft.	Pk sound level < 45 dB(A) at 700 ft.	Pk sound level < 40dB(A) at 1250 ft.	Pk sound level < 35 dB(A) at 2000 ft.
<b>Operations</b>	(10-30 yrs.)				
Gas engine for pump, 1 muffler	approx. 71.7 dB (A) @ 50 feet	345 feet; combined → 58 dB(A)	1,080 ft. (0.2 mi.); combined → 48 dB(A)	1,920 ft. (3/8 mi.); combined → 43 dB(A)	3,420 ft. (.65 mi.); combined → 38 dB(A)
Electric motor for pump	unquantified, but very low	N/A	N/A	N/A	N/A
Worker traffic	1 RT/day; negl	N/A	N/A	N/A	N/A
Hydraul. fracturing (if nec.) temp. 1-2 days	up to 109 dB(A) @ 50 feet	25,060 feet (4.75 miles) → 58 dB(A)	79,400 feet (15 miles) → 48 dB(A)	141,000 feet (26.7 miles) → 43 dB(A)	251,000 ft. (47.5 miles) → 38dB(A)

### 4.5.3.3 *Environmental Justice*

None of the potentially significant environmental effects identified would disproportionately affect minority or low-income communities.

### 4.5.4 Access / Traffic

This section estimates the reasonably foreseeable amount of additional traffic that would be generated for each alternative for each HOGPA and projects whether the resultant traffic would result in a cumulatively significant impact.

Construction and use of roads and highways can have direct and indirect effects. Indirect effects of road construction and use on other resources are discussed in the appropriate sections as shown below:

<u>Impact</u>	<u>Section</u>
Air Quality Degradation	4.3.2: Air Quality
Erosion/Sedimentation	4.3.3: Watershed Resources
Removal of Vegetation/Habitat	4.4: Biological Resources
Wildlife Disruption	4.4; Biological Resources
Spills/Contamination	4.5.8: Safety and Hazards
Recreation, Wilderness, & Roadless Areas	4.5.9: Recreation
Scenic Impacts	4.5.7: Scenic Resources
Noise	4.5.3.2: Noise

The existing road network is shown on the maps in the DEIS map packet. The transportation system potentially affected is described in Chapter 3 in section 3.3.4.

Projections for commuter and oil tanker traffic generated by HOGPA for each alternative are shown in Tables 4-40 and 4-41 respectively. Table 3-37, in Chapter 3, shows the expected commuter and oil tanker routes to and from each of the HOGPAs and Table 3-48 shows traffic data and level of service thresholds (LOS) along the routes.

As was concluded in Chapter 3 section 3. 3.4.4, and can readily seen in Table 3-38, Highway 33 near Ventura and Highway 126 from Highway 118 to the junction with Highway 150 all exceed LOS D at the peak hour and thus are incurring significance traffic impacts without any additional traffic from this project. Any additional traffic on these links, at peak time, would add to an already significant traffic impact.

Table 4-40 shows the amount of peak hour commuter traffic that would be generated from each HOGPA for each alternative by year. Table 4-41 projects the amount of peak hour tanker truck traffic and adds it to the peak commute traffic. This assumes the peak commute and tanker truck traffic occurs during the same time. Since commuter traffic peaks during construction and tanker

traffic peaks during production this assumption over, rather than under, estimates the peak traffic.

None of the Alternative would generate enough traffic to cause any of the routes to exceed LOS D that are not already doing so. As can be seen in Table 4-41 the peak amount of tanker and commuter traffic, 65.2 vehicles per hour, would be generated by development in the South Cuyama HOGPA in Alternative 2. As seen in Table 4-41, all other HOGPAs in all alternatives generate less peak traffic than this. A comparison of column 5 of Table 3-38 (*current peak hour vehicles per hour*) with column 6 (*LOS D peak hour vehicles per hour*) shows that all routes, except those already significantly impacted, could sustain and additional 65.2 vehicles per hour and not exceed the significance threshold of LOS D. Since all HOGPAs in all alternatives generate less peak traffic than 65.2 vehicles per hour the only significant impact that will occur is where they are already occurring without the project.

Significant impact with or with out the project are occurring where major links are entering urban areas. This is occurring where Highway 33 enters Ventura and Highway 126 enters Fillmore. The segment of Highway 33 into Ventura would only be utilized for traffic from the Piedra Blanca HOGPA in Alternative 2. No traffic is projected for this section under any other alternative. The South Cuyama HOGPA would generate traffic on the northern portion of Highway 33 toward Taft and Bakersfield in all alternatives. However, there is ample capacity to sustain this traffic increase on the northern section of Highway 33 and remain below LOS D.

The significant impacts are also occurring on Highway 126 in the vicinity of Fillmore without any additions from the project. Tanker traffic from the San Cayetano HOGPA (*32.6 vehicles per hour maximum in Alternative 2*) and commuter traffic from the Sespe HOGPA (*31.0 vehicles per hour maximum*) would use this segment in all alternatives. This represents less than one percent of the peak hour traffic (*3,950 vehicles per hour on Highway 126 at junction with Highway 150*). However, this would be in addition to an already significant impact.

Scheduling the traffic off of the peak hour by allowing crews the use of flexible work schedules would mitigate these impacts on Highways 33 and 126.

An unresolved problem occurs when County maintained roads are used by heavy trucks resulting from trips generated by activity on LPNF. Road construction, pad construction, well drilling, tanker transport, and maintenance operations generate repetitions of heavy load traffic. Many rural County roads have not been designed and constructed to meet these needs which results in accelerated deterioration of the roads. The Counties cannot place weight on these roads and collect fees to cover the increased cost of maintenance.

To mitigate this problem LPNF will attach the following Information Notice to any new leases:

*As a condition of approval of any APD or SUPO, the lessee shall submit a traffic management plan to LPNF and the County or Counties where activities are planned. LPNF will require approval of the plan by the respective County or Counties, which may require collection of a fee by the County or Counties to cover impact to roads under their jurisdiction.*

In contrast to County roads, most State Highways are designed and constructed with sufficient structural integrity to accommodate heavy trucks.

Additional oil and gas development would require additions/modifications to the LPNF transportation system to accommodate the activities. The reasonably foreseeable amount of new roads expected, under each alternative scenario, for each HOGPA, is shown in Tables 2-2, 2-3, 2-5, 2-7, 2-10, 2-12, 2-14 and 2-17. More specific estimates of effects of road construction activities can only be determined when the detailed, site-specific Application to Drill (APD) and Surface Use Plans of Operation (SUPO) are submitted to the Forest Service for review and approval.

TABLE 4-40: PEAK HOUR COMMUTE TRAFFIC GENERATED BY ALTERNATIVE BY HOGPA.

Alternative	HOGPA	Commuting From	Vehicles per Peak Hour by Years After Lease Date <sup>1</sup>								
			1	2	3	4	5	6	7	8	9
1	San Cayetano	Ventura	10	1	1	1	1	1	1	1	1
	Sespe	Ventura	12	12	1	1	1	1	1	1	1
	South Cuyama	Bakersfield	15	10	7	1	1	1	1	1	1
2	Piedra Blanca	Ventura	0	0	28	11	12	1	1	1	1
	San Cayetano	Ventura	26	31	14	4	1	1	1	1	1
	Sespe	Ventura	30	26	22	18	15	11	13	13	1
	Rincon Creek	Ventura	0	0	28	9	2	1	1	1	1
	South Cuyama	Bakersfield	29	24	19	10	5	1	1	1	1
	La Brea Canyon	Santa Maria	0	0	27	9	1	1	1	1	1
	Figueroa Mt.	Santa Maria	0	0	28	11	12	1	1	1	1
	Lopez Canyon	Santa Maria	0	0	27	2	1	1	1	1	1
	Monroe Swell	King City	0	0	28	2	1	1	1	1	1
3 or 5	San Cayetano	Ventura	15	23	7	2	1	1	1	1	1
	Sespe	Ventura	15	31	26	19	1	2	1	1	1
	Rincon Creek	Ventura	0	5	15	9	1	1	1	1	1
	South Cuyama	Bakersfield	14	29	24	10	13	1	1	1	1
	La Brea Canyon	Santa Maria	0	5	15	11	1	1	1	1	1
	Figueroa Mt.	Santa Maria	0	5	14	1	1	1	1	1	1
	Lopez Canyon	Santa Maria	0	0	20	9	1	1	1	1	1
4	San Cayetano	Ventura	15	15	15	2	1	1	1	1	1
	Sespe	Ventura	15	31	28	20	8	2	1	1	1
	Rincon Creek	Ventura	0	5	15	12	1	1	1	1	1
	South Cuyama	Bakersfield	19	24	19	10	3	1	1	1	1
	La Brea Canyon	Santa Maria	0	5	15	11	1	1	1	1	1
	Figueroa Mt.	Santa Maria	0	0	13	1	1	1	1	1	1
	Lopez Canyon	Santa Maria	0	0	15	14	1	1	1	1	1
4a or 5a	San Cayetano	Ventura	15	15	15	2	1	1	1	1	1
	Sespe	Ventura	15	31	28	20	8	2	1	1	1
	Rincon Creek	Ventura	0	5	15	12	1	1	1	1	1
	South Cuyama	Bakersfield	19	24	19	10	3	1	1	1	1
	Figueroa Mt.	Santa Maria	0	0	13	1	1	1	1	1	1
	Lopez Canyon	Santa Maria	0	0	15	14	1	1	1	1	1
Preferred	San Cayetano	Ventura	15	15	15	2	1	1	1	1	1
	Sespe	Ventura	15	31	28	20	8	2	1	1	1
	South Cuyama	Bakersfield	19	24	19	10	3	1	1	1	1

<sup>1</sup>Source: Air Quality Background Report for Los Padres Oil and Gas Leasing EIS, CH2MHILL, August 1998

LPNF would encourage the use of existing roads to access drill sites where feasible and possible. Short roads to drill sites, connected to existing roads, would be used where possible. Some roads

may be closed or eliminated, as a better transportation system is completed, through reconstruction or new construction, for oil and gas or other resource management activities.

TABLE 4-41: PEAK HOUR OIL TANKER &amp; COMMUTE TRAFFIC BY HOGPA BY ALTERNATIVE

Alternative	HOGPA	Total Mean Oil Mill. Barrels	Percent by Truck %	Total by Truck Mill. Barrels	Tank Truck Peak Hour Veh/hr	Commute Peak Hour Veh/hr	Total Peak Hour Veh/hr	Destinations	
								Tankers	Commuters
<b>1</b>	San Cayetano	0.1	70	0.07	0.4	10	10.4	Fillmore	Ventura
	Sespe	0.4	10	0.04	0.2	12	12.2	Fillmore	Ventura
	South Cuyama	0.7	40	0.28	1.7	15	16.7	Taft	Bakersfield
<b>2</b>	Piedra Blanca	1.3	100	1.2	8.5	28	36.5	Ventura	Ventura
	San Cayetano	26.7	30	7.23	32.6	31	63.6	Fillmore	Ventura
	Sespe	32.1	10	3.02	13.6	31	43.6	Fillmore	Ventura
	Rincon Creek	0.4	100	0.4	1.8	28	29.8	Ventura	Ventura
	South Cuyama	28.3	30	8.04	36.2	29	65.2	Taft	Bakersfield
	La Brea Cyn.	0.8	100	0.8	3.6	27	30.6	Santa Maria	Santa Maria
	Figueria Mtn.	0.3	100	0.3	1.4	28	29.4	Santa Maria	Santa Maria
	Lopez Canyon	0.3	100	0.3	1.4	27	28.4	Santa Maria	Santa Maria
	Monroe Swell	0	0	0	0	28	28	N/A	King City
<b>3 or 5</b>	San Cayetano	0.5	70	0.35	1.2	23	24.2	Fillmore	Ventura
	Sespe	2.5	10	0.25	0.8	31	31.8	Fillmore	Ventura
	Rincon Creek	0.1	100	0.1	0.3	15	15.3	Ventura	Ventura
	South Cuyama	18	30	5.4	18.3	24	42.3	Taft	Bakersfield
	La Brea Cyn.	0.1	100	0.1	0.3	15	15.3	Santa Maria	Santa Maria
	Figueria Mtn.	0.1	100	0.1	0.3	14	14.3	Santa Maria	Santa Maria
	Lopez Canyon	0.1	100	0.1	0.3	20	20.3	Santa Maria	Santa Maria
<b>4</b>	San Cayetano	0.5	70	0.35	1.6	15	16.6	Fillmore	Ventura
	Sespe	2.5	10	0.25	1.1	31	32.1	Fillmore	Ventura
	Rincon Creek	0.1	100	0.1	0.5	15	15.5	Ventura	Ventura
	South Cuyama	14	30	4.2	18.9	24	42.9	Taft	Bakersfield
	La Brea Cyn.	0.1	100	0.1	0.5	15	15.5	Santa Maria	Santa Maria
	Figueria Mtn.	0.1	100	0.1	0.5	13	13.5	Santa Maria	Santa Maria
	Lopez Canyon	0.1	100	0.1	0.5	15	15.5	Santa Maria	Santa Maria
<b>4a or 5a</b>	San Cayetano	0.5	70	0.35	1.6	15	16.6	Fillmore	Ventura
	Sespe	2.5	10	0.25	1.1	31	32.1	Fillmore	Ventura
	Rincon Creek	0.1	100	0.1	0.5	15	15.5	Ventura	Ventura
	South Cuyama	14	30	4.2	18.9	24	42.9	Taft	Bakersfield
	Figueria Mtn.	0.1	100	0.1	0.5	13	13.5	Santa Maria	Santa Maria
	Lopez Canyon	0.1	100	0.1	0.5	15	15.5	Santa Maria	Santa Maria
<b>Preferred</b>	San Cayetano	0.5	70	0.35	1.6	15	16.6	Fillmore	Ventura
	Sespe	2.5	10	0.25	1.1	31	32.1	Fillmore	Ventura
	South Cuyama	14	40	5.6	18.9	24	42.9	Taft	Bakersfield

The roads to the individual well sites or batteries will be reclaimed or managed as intermittent service facilities after they are no longer needed for oil and gas activity. Intermittent service roads will be graded and maintained for drainage. Reclaimed oil and gas roads are rehabilitated to near-natural condition.

All alternatives would apply standard Lease Terms (SLT). Under SLT, oil and gas activities may be relocated up to 200 meters (656 feet). This would provide the opportunity to locate oil and gas facilities off of existing or proposed road networks and right-of-ways, thereby avoiding direct effects to the road system completely. Activities could also be delayed for up to 60 days, for such things as wet conditions or when the ground is frozen, to mitigate effects on roads. Adverse impacts to the existing transportation system are expected to be limited to increased traffic and wear and tear, and would be minor.

## **4.5.5 Land and Resource Management Plans**

### **4.5.5.1 *Forest Plan***

Compliance with the Forest Plan is evaluated by each resource in the respective sections. In general, all alternatives are not in complete compliance with the Forest Plan because they each encompass Alternative 1. Alternative 1 is the no-action alternative, which in this case means continuation of the current management situation with no new oil and gas leases. The existing oil and gas leases cannot be terminated unless they cease production or fail to comply with lease terms.

Alternative 2 does not meet Forest Plan requirements in numerous areas basically because mitigation is limited to only the BLM Standard Lease Terms, which do not afford adequate mitigation.

Alternative 3 is based on meeting the Forest Plan. The Alternative 3 lease stipulations are specifically designed to assure the Forest Plan requirements are met in any new leases issued. However, as stated above, Alternative 3 still does not completely meet the Forest Plan in that it encompasses Alternative 1.

Alternatives 4, 4a, 5, and 5a all have mitigating stipulations equal to or greater than Alternative 3. As a result, any new leases issued under those alternatives would comply with the Forest Plan. However, since they each encompass Alternative 1 as well, they do not totally comply.

### **4.5.5.2 *Designated and Candidate Research Natural Areas (RNA's)***

The landscapes within Research Natural Areas (RNA's) are supposed to essentially possess the visual characteristics of a natural condition. Consequently, oil and gas activities would be an incompatible use in any designated or candidate RNA. As a result, any oil and gas activities within a designated or candidate RNA's would be considered a significant impact. RNA's and candidate RNA's are to be managed for non-destructive, non-manipulative research and study.

All of the designated and candidate RNA's except Wagon Caves RNA are in designated Wilderness areas. Designated Wilderness areas are withdrawn from mineral entry and cannot be leased for oil and gas development. Consequently, with the possible exception of Wagon Caves, there would be no impacts to these areas from oil and gas activities under any alternative. Table 4-42 identifies which Wilderness area each RNA is in.

The Wagon Caves RNA is located nine miles northeast of Lopez Point on lower Rattlesnake Creek in the Monterey Ranger District. It is adjacent to road 19S09 at the entrance to LPNF from Hunter-Liggett Military Reservation in Township 21 South Range 5 East, Mount Diablo Meridian. It is in an area of low oil and gas potential. The nearest HOGPA is the Monroe Swell over 10 miles away. Consequently, the Wagon Caves RNA is not expected to be impacted by any alternative.

TABLE 4-42: WILDERNESS LOCATIONS OF DESIGNATED AND CANDIDATE RNA'S.

<b>Designated or Candidate RNA</b>	<b>Designated Wilderness Area</b>
<i>Cone Peak RNA</i>	<i>Vantana</i>
<i>Black Butte RNA</i>	<i>Santa Lucia</i>
<i>American Canyon RNA</i>	<i>Machesna</i>
<i>San Emigdio Mesa RNA</i>	<i>Chumash</i>
<i>Ventana Cone RNA</i>	<i>Ventana</i>
<i>Wagon Caves RNA</i>	<i>N/A</i>
<i>Candidate San Rafael Mountain RNA</i>	<i>San Rafael</i>
<i>Candidate Big Pine Mountain. RNA</i>	<i>San Rafael</i>

The Forest Plan requires any designated or candidate RNA area to be given a No Surface Occupancy (NSO) stipulation if they are within an area leased for oil and gas. All of the designated and candidate RNA's except Wagon Caves meet the Forest Plan in all alternatives since they are in the Wilderness Areas that cannot be leased in any of the alternatives. Wagon Caves RNA does not meet the Forest Plan requirements to be given an NSO stipulation under Alternative 2. Under Alternative 1, Wagon Caves RNA is not in any existing lease area so the Forest Plan is met. Under all other alternatives, Wagon Caves RNA either is in the no lease area or has a NSO stipulation as required by the Forest Plan.

#### **4.5.5.3 County Land Use Plans**

Chapter 3 provides a comprehensive overview of the County Plans regarding oil and gas development. Although local counties do not have land use jurisdiction on National Forest System lands their plans do cover private lands within LPNF boundary. Furthermore, both LPNF and the counties strive to have harmonious plans since they share many miles of border.

There are no oil and gas activities on LPNF projected to be located in Kern and Los Angeles Counties under any alternative leasing scenario.

The only oil and gas activities on LPNF in Monterey County would be from the Monroe Swell HOGPA under Alternative 2. Such activity there is compatible with the County Plan. There are no oil and gas activities in Monterey County in any of the other alternatives.

The only oil and gas activities on LPNF in San Luis Obispo County would be within the Lopez Canyon HOGPA in alternatives 2, 3, 4, 4a, 5, and 5a. San Luis Obispo County expressed concern for impacts at Lopez Lake, especially to recreational and water resources. Development under the Alternative 2 leasing scenario would not be consistent with the County Plan due to the limited mitigating potential of Standard Lease Terms. However, development under alternatives 3 through 5a would have sufficient stipulations to mitigate impacts below the level of significance and meet the County Plan.

Santa Barbara and Ventura Counties have both offshore and onshore oil and gas development outside of LPNF. As a result they address oil and gas development in their respective County Plans. All of the alternatives being considered, with the exception of Alternative 2 would be compatible with the plans for Santa Barbara and Ventura Counties.

#### **4.5.6 Oil and Gas Development**

This section addresses the industrial infrastructure needed to process and transport oil and gas, subsurface resource draw down, and the consequences of the various alternatives upon oil and gas development.

##### **4.5.6.1 *Industrial Infrastructure to Process and Transport Oil and Gas Products***

###### **4.5.6.1.1 Access, Trucking, Pipelines and Power Lines**

Oil and gas production has an impact on facilities, operations and shipping. If new production is established within or adjacent to an existing oil field, existing facilities can almost always be used. These facilities include power lines, pipelines and processing facilities. Such facilities were designed earlier in the life of the field when, in almost all cases, production rates were much greater. The decline to the present rates of production has resulted in excess capacity of most facilities.

If new production is established in remote areas, the economics justifying construction of power lines and pipelines is a function of distance to and size of the new discovery. If the new discovery is small (1-2 million barrels) it likely will not support the cost of constructing power lines and pipelines over any distance greater than about one mile. On the other hand, a discovery larger than 20 million barrels would support a considerable length of such new construction. In every case it is necessary to have local facilities to remove produced water and sediment prior to shipping.



Based on the foregoing, this analysis assumes that within or adjacent to existing fields, facilities of the existing field will be utilized. For small discoveries in remote areas, new power lines will not be installed and pumps will be powered by natural gas (or propane) fueled engines. If a pipeline passes through or very near such a discovery, it will generally be utilized. Otherwise, produced oil (and sometimes wastewater) will be shipped by truck.

#### **4.5.6.1.2 Refineries**

Seventeen refineries currently are operating in southern California (greater Los Angeles, Bakersfield, Santa Maria and Oxnard) with a capacity exceeding 1.1 million barrels per day. Six refineries with additional capacity of about 100,000 barrels per day are presently idle. These refineries have sufficient excess capacity to accommodate any anticipated production from new LPNF oil and gas leases. Crude oil from most of the HOGPAs would probably be refined in Los Angeles. (Tom Hopps, Petroleum Geologist, Rancho Energy Corporation, Personal Communication, August 2001)

#### **4.5.6.2 Consequences of Alternatives upon Oil and Gas Development.**

The different alternative leasing scenarios have differing consequences regarding the resultant oil and gas development. The obvious consequence is the amount of resource produced. The RFD projects the reasonably foreseeable amount of oil produced in million of barrels as shown in Table 4-43.

TABLE 4-43: OIL EXPECTED TO BE PRODUCED BY ALTERNATIVE

<b>Alternative</b>	1	2	3	4	4a	5	5a	Preferred
<b>Millions of Barrels of Oil</b>	1.2	90.2	21.4	17.4	17.3	21.4	17.3	17.0

Alternative 1 merely shows the oil from new wells expected under the existing leases. Alternative 2 would produce the most oil, 90.2 million barrels. Alternatives 3 and 5 are the same since the stipulations within HOGPAs are essentially the same in these two alternatives. Although Alternatives 4, 4a, and 5a produce essentially the same amount of oil they are quite different. In Alternatives 4a and 5a the Inventoried Roadless Areas are either under a no surface occupancy stipulation or not leased. This has a big impact on how the oil and gas is developed in the South Cuyama HOGPA, which produces 14 of the 17.3 million barrels. In alternatives 4a and 5a the greater part of the oil and gas resource in the South Cuyama HOGPA is projected to be accessed from pads just outside LPNF boundary on private lands. This will complicate the development process and could have a positive economic effect on the private lands where the well pads are located. The New Preferred Alternative would produce oil solely from portions of the Sespe, San Cayetano, and South Cuyama HOGPAs. Alternative 5a stipulations would apply to exploration and development in these HOGPAs.

### **4.5.6.3 Oil and Gas Resource Draw Down**

#### **4.5.6.3.1 Oil and Gas Drainage areas**

Reservoir conditions within the HOGPAs can generally be expected to support fluid drainage from distances of 200-500 ft and gas drainage from distances up to a maximum of about 1500 ft. These drainage distances depend on the combined factors of oil gravity (viscosity), reservoir permeability and reservoir pressure. Higher gravity (lower viscosity), greater permeability or greater pressure will independently facilitate greater drainage distances than their counterparts of lower gravity, lower permeability or lower pressure. Note that while both oil gravity and reservoir pressure are approximately constant over any given drainage area, permeability may be significantly greater in one horizontal direction than in another, especially along fracture trends.

#### **4.5.6.3.2 Drainage of Oil and Gas From Adjacent Lands**

Reservoir drainage is not inhibited by property lines; if the distance from a producing well to the property line is less than the drainage radius for that well (the distance from that well to the edge of its drainage area), the producing well will drain a portion of the adjoining land (offset drainage). Offset drainage is mitigated in part by the California Department of Oil, Gas, and Geothermal Resources (CDOGGR), which, except for certain circumstances, prohibits drilling a well within 75 ft of a property line. Typically, it is further mitigated by completing a protection well on the adjoining land at an offset (similar) distance from the property line. If conditions exist such as inability to obtain a lease from either a private party or a government agency, inability to obtain permits or unfavorable economics, a protecting offset well may not be drilled and completed to production. In that case, a small portion of the unprotected acreage would be drained.

### **4.5.7 Scenic Resources**

#### **4.5.7.1 *Introduction***

This section documents projections of potentially significant scenic impacts of implementing the various alternative leasing scenarios described in Chapter 2 within the affected environment described in Chapter 3. The projections were made using the Reasonably Foreseeable Development (RFD) scenarios for each alternative, the landscape sensitivity analysis process described in Chapter 3, and the Scenic Background Report on file in the Forest Supervisors office. All design considerations and timing limitations of the Scenic Information Notice listed in Chapter 2 that are applied through the BLM Standard Lease Terms are applicable to all alternatives.

This chapter also documents results of the Forest Plan compliance analysis for each alternative.

The results are discussed below and shown on the potential scenic consequences maps on file with the Scenic Background Report in the Forest Supervisors office.

#### **4.5.7.2 Types of Scenic Impacts**

Loss of natural-appearing landscapes and loss of visual quality are the primary scenic impacts associated with oil and gas leasing activities. The amount of loss depends upon visual absorption capability of the landscape, the context and intensity of the proposed activities, and existing scenic conditions.

Scenic impact is related to size of the proposed activity and its resultant contrast in form, line, color and texture of its environmental setting. Losses of scenic quality are expected to be greatest in the exploration, development, and production stages, particularly where new roads, drill pads, structures, and other surface disturbance activities are located within landscapes having low visual absorption capability.

Oil and gas exploration and development could potentially result in direct site impacts and indirect impacts as seen from sensitive viewpoints (e.g., recreation sites, roads, and trails) and cause substantial change in scenic conditions. Significant scenic impacts could occur where strong visual contrasts could be perceived as human-caused, introduced, unnatural forms, lines, colors, or textures in the landscape. These impacts might occur in the foreground, middleground, or background viewing distance zones.

Oil and gas exploration and development activities could result in adverse effects wherever visually contrasting elements or modifications are introduced in the characteristic landscape. Visually contrasting elements could include roads, drill pads, storage tanks, utility lines, and other facilities, as well as changes to landforms and vegetation patterns that could result from clearing and grading sites for these facilities. Essentially, any change to the form, line, color, and texture elements of the existing landscape could cause visual contrast. The introduction of visually contrasting elements or modifications of scale into the existing landscape by oil and gas activity could potentially alter the scenic quality of the area and/or impact views from sensitive viewpoints.

Drilling activities typically result in the most evident visual contrasts, particularly in areas that are largely undisturbed. However, impacts from exploration activities are usually short-term. Following the exploratory phase, drilling equipment is removed and the area reclaimed, mitigating most impacts. In the case of a discovery, oil and gas activities could move into the development and production phases, which typically could result in long-term scenic impacts that could vary in magnitude. Scenic impacts can be reduced by siting facilities to take advantage of terrain and vegetation to screen activities from views. Re-grading and rehabilitation of roads and the use of non-contrasting colors on structures can help minimize scenic impacts. Such mitigation measures are implemented through the proposed information notice, which explains the implementation of BLM Standard Lease Terms.

Exploratory drilling may result in scenic impacts where this activity is visible in the foreground from sensitive viewpoints, particularly in previously undisturbed landscapes. The presence of equipment potentially could be noticeable for two to three months. Roads could be noticed for several years. If no discovery is made, equipment would be removed and the area reclaimed.

Field development visible in foreground from sensitive viewpoints typically creates strong contrasts that could result in significant viewer impacts. Where a field development would be seen in middleground and background views, visual contrasts could range from strong-moderate to moderate-weak, depending upon the visual absorption capability of the landscape.

Oil and gas activities that result in strong visual contrasts in the foreground or middleground distance zones would tend to be dominant in the landscape and be evident to casual forest observers, and would not meet the intent of either Retention or Partial Retention VQOs. Strong visual contrasts in seldom-seen areas that degrade highly scenic landscapes (Variety Class A) also would not meet Retention or Partial Retention VQOs.

Impacts to the visual resources on Los Padres National Forest could also occur as a result of the development of private mineral development areas within the National Forest boundary. Oil and gas activities within private mineral areas are not required to meet Forest Plan standards for scenic resources.

The following seven conditions summarize the typical scenic impacts that result from oil and gas exploration and development.

- 1. Above ground structures located on skyline ridges and within broad, flat areas with low vegetation screening usually can be seen in silhouette against the sky. These structures can become visually dominant in foreground and middleground distances, and may dominate at background distances.*
- 2. Roads, pipelines, and power lines produce linear patterns in the landscape. All three of these linear features can cause removal of natural vegetation. Roads also could cause major landform alterations on steeper slopes. Power lines could result in the addition of structures to the landscape, in the form of poles, towers, and conductors. Power lines and pipelines often are arranged in straight lines and at right angles to the contours, thereby interrupting natural vegetative patterns and/or negating natural vegetative screening potentials. On steeper slopes, roads are usually located parallel or at shallow angles to the contours, thereby potentially receiving screening from natural vegetation. If vegetation is taller than cut-and-fill slopes, the road may be screened from view. However, if vegetation is shorter than cut-and-fill slopes, the road could contrast with the landscape.*
- 3. On skyline ridges, all-wheel-drive (AWD) roads and drill pads ½ acre or less usually can remain subordinate to the natural landscape. Graded roads on steep slopes and drill pads larger than ½ acre are likely to result in visible alterations to these landforms. Clearing of vegetation on skyline ridges may be noticeable.*
- 4. Structures, drill pads, and roads can be visually dominant in barren areas, grasslands, or brushlands, due to the lack of natural screening.*

5. *Where the viewer is above the surrounding landscape, such as on a ridge top trail or road, oil and gas developments could be more visually dominant because the viewing position could negate effective screening.*
6. *Oil and gas activities in foreground distance zones (less than 1/2 mile) could have more visible details, and therefore, are of greater visual impact.*

#### **4.5.7.3 Results of the Scenic Impact Analysis**

This section describes the potential effects of the alternative leasing scenarios considered in detail and described in Chapter 2 on the scenic environment of Los Padres National Forest.

For the purposes of this analysis, potentially significant scenic impacts are assumed to occur where adopted Visual Quality Objectives (VQO's) are not met and/or where the project results in a change from a non human-dominated landscape to a human-dominated landscape (i.e. existing scenic condition of 1, 2, or 3 and a projected future scenic condition of 4, 5, or 6). At this stage of the process only the likelihood of potential significance can be identified. Further analysis is necessary at the APD stage when more information is known about the actual context, intensity and specific location of activities.

The potentially significant impacts projected to be associated with oil and gas activities are based on:

- *The Reasonably Foreseeable Development (RFD) scenario for each alternative described in Chapter 2;*
- *The scenic landscape impact sensitivity methodology documented in Scenic Background Report and Chapter 3 of this EIS.*

Please note that all impacts of existing leases as noted under Alternative 1 are applicable to all other alternatives as well since existing leases are entitled to continue as long as lease terms are being met and production continues.

##### **4.5.7.3.1 Direct Impacts**

The potential scenic consequences maps in the Scenic Background Report and tables in this chapter indicate the susceptibility or vulnerability of the forest to potentially significant scenic impacts from oil and gas leasing for the various alternative-leasing scenarios. These maps and tables also indicate potential compliance/non-compliance with the Forest Plan. The tables indicate the amount of acres that are vulnerable and the maps indicate the location of these sensitive areas. The RFD estimates of acres disturbed indicate the magnitude of the impacts that are reasonably foreseeable. Comparing the magnitude of the RFD estimates with the amount and location of sensitive lands gives an indication of the likelihood of locating the activities to avoid significant impacts.

The RFD estimates of acres impacted are specific to each HOGPA but are not locatable within each HOGPA. If development occurs beyond these RFD predictions, which is not reasonably foreseeable, impacts would increase.

The area outside of the HOGPAs (non-HOGPA) is not known to have the geologic character that would indicate any reasonably foreseeable oil and gas development potential. However, there are portions of the non-HOGPA area in the existing leases (Alternative 1) and all or portions of the non-HOGPA area could be offered for lease in the other alternative leasing scenarios as well. Since the non-HOGPA could be leased, it would be susceptible to scenic impact from oil & gas activities should they occur there. No such activities are reasonably foreseeable at this time in the non-HOGPA.

#### **4.5.7.3.2 Indirect Impacts**

Direct and indirect scenic impact sensitivity are combined in this analysis. Although direct impacts are limited to the area of oil and gas activities, viewpoints outside the immediate activity area could be adversely affected, causing indirect impacts. The method of analysis takes this into consideration. The estimates of future scenic condition at a particular location are a function of visual absorption capability (VAC) which considers whether a particular location is within the foreground, middleground, or background of key view points such as transportation corridors, recreation facilities, and areas where people reside. As a result, the potential scenic consequences maps for an alternative records a potentially significant impact at the location of the development activity, when it may actually be an indirect impact from a key viewpoint within sight distance of that location. Although the potential scenic consequences maps do not identify the viewpoints where these indirect impacts could occur, the locational sensitivity to the development that would cause these indirect impacts is identified.

#### **4.5.7.3.3 Cumulative Impacts**

To determine cumulative scenic impacts, the potential impacts of the proposed oil and gas leasing development and other reasonably foreseeable activities that may impact the scenic resources are considered along with impacts of past and present activities. This includes past and present oil and gas developments, construction and maintenance of highways, roads, trails, fuel breaks, and pipelines.

This chapter addresses the additional scenic impacts from reasonably foreseeable future projects on LPNF. At this time there are no other reasonably foreseeable activities other than oil and gas leasing that might contribute additional significant scenic impacts on Los Padres National Forest. However, even when less than significant impacts from construction and maintenance activities for highways, fuel breaks, or trails are added to the existing significant impacts they may, depending on context and intensity, be cumulatively significant when they add to scenic impacts already considered significant such as those in the Sespe Oil Fields. Context and intensity plays an important role in cumulative impacts. For example, while there may currently be significant cumulative impacts within the context of the Sespe Oil Field, the cumulative scenic impacts within the context of the entire Los Padres National Forest is not considered significant.

The cumulative effect of oil and gas activity would be greatest if a large discovery was to occur and a major oil field was developed. A major oil field development could substantially alter the

characteristic landscape; however, as indicated in the RFD, such a new major oil find is not reasonably foreseeable.

#### **4.5.7.3.4 Irreversible/Irretrievable Impacts**

An irreversible impact is one that cannot be reversed. The entire loss of an endangered species represents an irreversible impact. The transformation of a mountain into a large open pit mine, for all practical purposes, represents an irreversible scenic impact.

An irretrievable impact is one that is sustained for a certain period of time but is reversible. An impact that can be mitigated but the mitigation measure takes time to be effective, such as revegetation, is an example of an irretrievable impact. Until the revegetation is effective, an irretrievable impact has occurred.

#### **4.5.7.3.5 Short-term/Long-term Tradeoffs**

Short-term in this analysis deals with the life of the potential projects that may result from additional leasing and could extend 50 to 100 years into the future in some cases. Long-term is beyond the life of the resultant projects.

Short-term irretrievable scenic impacts result when scenic resources are degraded in the process of developing oil and gas resources. These impacts may proceed into the long-term to the extent they are not mitigated through revegetation either naturally or as part of rehabilitation. These impacts can be irreversible to the extent they involve landform alterations that cannot be restored or sufficient revegetation never occurs.

It could be argued that scenic impacts due to vegetation loss might naturally recover in the very long-term, even if not revegetated in the short-term, if nature is given a sufficiently long time. In such cases, there would be irretrievable scenic impacts for perhaps generations of forest users until the vegetation fully recovered. Scenic impacts of mining activities that occurred in the early 1900's are still visible today.

#### **4.5.7.3.6 Impacts of Alternative 1 - No Action - No New Leases**

Under the Alternative 1 scenario, oil and gas activities could only occur within existing lease areas. Existing leases are located in the San Cayetano, Sespe, and South Cuyama HOGPAs and in the non-HOGPA area. The existing leases are shown on the maps in the DEIS map packet. Only the existing BLM Standard Lease Terms, existing lease stipulations and existing lease information notices can be applied to existing leases. Additional oil and gas exploration and development in the existing lease areas could result in additional scenic impacts.

Under the Alternative 1 scenario, the RFD analysis indicates that additional development only on existing leases in the San Cayetano, Sespe, and South Cuyama HOGPAs is reasonably foreseeable. No development is reasonably foreseeable in any other HOGPA or the non-HOGPA area. The RFD projections for Alternative 1 are shown in Table 2-2. The new wells in the San Cayetano and Sespe HOGPAs are projected to be on existing well pads and should not

impact land that hasn't already been disturbed. Thus, no additional significant scenic impacts are anticipated there, but the visibility and intensity of impacts could increase. The South Cuyama HOGPA is projected to experience additional development that will result in one new well pad, one-half mile of new road, and one-half mile of new pipeline. This new disturbance is estimated to amount to be three acres initially and two acres after rehabilitation of initial construction activity.

#### **4.5.7.3.6.1 Alternative 1 Forest Plan Compliance**

Although Alternative 1 would not allow any new leases, further development, that may not meet the adopted VQOs, could occur on the existing leases. Whether or not any new development met the adopted VQOs would depend on where the development occurred. There are 5,642 acres within the 21 existing leases.

#### **4.5.7.3.6.2 Alternative 1 Direct and/or Indirect Impacts**

Under the Alternative 1 scenario, development can occur anywhere within the existing lease areas where surface occupancy is allowed. Substantial alterations of the landscape are possible. However, the magnitude of the lands projected to be impacted in the RFD is only three acres out of a total of 5,642 acres of existing lease lands. Whether or not the resultant impacts are actually significant depends on the context and intensity of the development. This is dependent on the proposed activities and actual location, which are both unknowns until development proposals are presented after leasing occurs.

#### **4.5.7.3.6.3 Alternative 1 Irreversible/Irretrievable Impacts**

Past activities on LPNF, including oil and gas development in existing lease areas, have resulted in an irretrievable loss of scenic resources over an extended period of time. The ability to require current lessees to mitigate or rehabilitate these impacts is a function of the existing lease terms, which cannot be changed without the consent of the lessee. Additional activities in existing lease areas could increase irretrievable impacts. The three acres of projected additional impact is expected to reduce to two acres after rehabilitation. Consequently, there would be an irretrievable impact of three acres until rehabilitation was completed. The two-acre impact thereafter could be irretrievable and/or irreversible depending on whether further rehabilitation was feasible and the extent of landform alterations.

#### **4.5.7.3.6.4 Alternative 1 Short-term/Long-term Tradeoffs**

Any scenic impact due to vegetation loss might naturally recover in the long-term, even if not revegetated in the short-term, provided topsoil is not removed, eroded, compacted or contaminated. However, certain scenic impacts that are the result of landform alterations such as grading for well pads and cuts and fills for roads cannot necessarily be recontoured to the original landform nor is it a lease requirement under the existing leases. This can result in an irreversible impact in which the landscape continues to appear human-dominated into the long-term.



#### **4.5.7.3.7 Impacts of Alternative 2 - Emphasize Oil and Gas Development**

Substantial alterations of the landscape are possible and Forest Plan VQOs would not be met under Alternative 2. Alternative 2 could lease all of LPNF not withdrawn from mineral entry or already leased. BLM Standard Lease Terms (SLTs) and information notices would be the only lease conditions for mitigating impacts. Proposed development sites can only be relocated within 200 meters of the original proposed location under SLTs. This may not be sufficient to avoid significant scenic impacts.

All of the existing lease impacts identified under Alternative 1 are applicable to Alternative 2 as well, since existing leases are entitled to continue as long as lease terms are met and production continues. The additional impacts of Alternative 2 are discussed below:

The Reasonable Foreseeable Development (RFD) estimates for Alternative 2 are shown in Table 2-3.

Tables 4-44 and 4-45 present the results of the scenic analysis of susceptibility for potentially significant impacts and Forest Plan compliance, under the Alternative 2 scenario, for each HOGPA and the non-HOGPA area. The *Potential Scenic Consequences of Alternative 2* map which accompanies the Scenic Background Report on file in the Forest Supervisor's Office shows the location of existing significant scenic impacts and areas that would be susceptible to additional, potentially significant scenic impacts as a result of not meeting adopted VQOs, if development occurred there. The map also shows areas that would meet adopted VQOs but still have potentially significant impacts from becoming a human-dominated landscape if developed.

##### **4.5.7.3.7.1 Alternative 2 Forest Plan Compliance**

Alternative 2 would not be in compliance with the Forest Plan. There are 528,860 acres of the 766,867 in the lease study area that would not meet the adopted VQOs should development occur there.

##### **4.5.7.3.7.2 Alternative 2 Direct and/or Indirect Impacts**

Alternative 2 is projected in the RFD to have 163.3 acres of ground-disturbing activities before rehabilitation and 70.1 acres after. As shown in Table 4.44, of the area not currently adversely impacted, there are 120,510 acres where development would not result in significant impacts and 599,719 acres or 78% of the study area susceptible to significant impacts if developed. Outside of areas already adversely impacted, it's 5 times more likely than not that the 163.3 acres expected to be disturbed would be located in an area that's susceptible to potentially significant impact if developed.

As shown in table 4-45, given the percentage of land susceptible to significant impacts if developed, and the reasonably foreseeable estimate of 163.3 acres of surface disturbance, it's likely that there will be an additional 135 acres of significant impacts in addition to the 7.1 acres projected for the existing leases. This analysis is strictly based on likelihood without other factors considered. The actual location of development would not, however, be a result of chance

nor uniformly distributed throughout the lease area. It would be a result of further exploration and analysis. The lessee would be made aware of the scenic sensitivity map and encouraged to avoid sensitive locations. Whether or not the resultant impacts would actually be significant depends on the context and intensity of the development. This is dependent on the specific activities and actual location, which are both unknowns until development proposals are presented after leasing occurs.

**4.5.7.3.7.3 Alternative 2 Cumulative Impacts**

As shown in table 4-45, there are 46,638 acres within the lease study area that are currently experiencing adverse scenic impacts as a result of past and present activities. Alternative 2 would, according to the RFD and the scenic analysis, likely add 135 acres where potentially significant impacts would occur if leased and developed. This is in addition to the 7.1 acres of additional impacts expected from continuing existing leases. While the incremental addition is still small in comparison to the existing impact, it would still further increase an impact that is already considered significant in local area context. If development were to occur in areas where VQOs could not be met, the cumulative impacts on scenery could be highly visible.

TABLE 4-44: ALTERNATIVES 2 SCENIC CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential <i>Alternative 2</i> (acres)	Area Subject to Lease	Area Already Has Existing Adverse Impacts Which Could Increase if Developed	For Areas Not Already Adversely Impacted, Is The Area Expected To Meet Forest Plan Visual Quality Objectives (VQOs) If Developed?						For Areas Not Already Adversely Impacted, Is the Area Susceptible to Significant Impacts if Developed?		How Much Land is Estimated to be Impacted in the Reasonably Foreseeable Development Scenario (RFD)?	
			Yes			No			Yes	No	Initial	After Rehab
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?		Total	Is the Area Expected to Change to a Human-dominated Landscape if Developed?		Total				
Area			Yes	No	Total	Yes	No	Total	Yes	No		
<i>Piedra Blanca</i>	2,815	266	0	74	74	2,333	142	2,475	2,475	74	22.0	12.0
<i>San Cayetano</i>	13,444	1,264	323	696	1,019	10,999	162	11,161	11,484	696	38.4	16.0
<i>Sespe</i>	12,882	1,980	235	402	637	10,122	143	10,265	10,500	402	35.2	12.1
<i>Rincon Creek</i>	9,052	905	56	516	572	7,362	213	7,575	7,631	516	6.0	3.0
<i>South Cuyama</i>	80,258	973	17,670	21,411	39,081	39,053	1,151	40,204	57,874	21,411	35.3	14.0
<i>La Brea Canyon</i>	9,273	502	547	709	1,256	7,498	17	7,515	8,062	709	8.1	4.0
<i>Figueroa Mtn.</i>	8,745	574	7	350	357	6,533	1,281	7,814	7,821	350	6.1	3.0
<i>Lopez Canyon</i>	2,257	50	39	11	50	2,132	25	2,157	2,196	11	6.1	3.0
<i>Monroe Swell</i>	600	39	41	43	84	469	8	477	518	43	6.1	3.0
<i>Total HOGPAs</i>	<i>139,326</i>	<i>6,553</i>	<i>18,918</i>	<i>24,212</i>	<i>43,130</i>	<i>86,501</i>	<i>3,142</i>	<i>89,643</i>	<i>108,561</i>	<i>24,212</i>	<i>163.3</i>	<i>70.1</i>
<i>Non-HOGPA Area</i>	<i>627,541</i>	<i>40,085</i>	<i>51,941</i>	<i>96,298</i>	<i>148,239</i>	<i>416,346</i>	<i>22,871</i>	<i>439,217</i>	<i>491,158</i>	<i>96,298</i>	<i>0.0</i>	<i>0.0</i>
<b>Total</b>	<b>766,867</b>	<b>46,638</b>	<b>70,859</b>	<b>120,510</b>	<b>191,369</b>	<b>502,847</b>	<b>26,013</b>	<b>528,860</b>	<b>599,719</b>	<b>120,510</b>	<b>163.3</b>	<b>70.1</b>

**4.5.7.3.7.4 Alternative 2 Irreversible/Irretrievable Impacts**

Irreversible and irretrievable impacts from existing leases as described under Alternative 1 would also occur under Alternative 2. Additionally, Alternative 2 would have an initial irretrievable impact to 163.3 acres before rehabilitation. This is projected to be reduced to 70.1 acres after

rehabilitation. Of these impacts, 135 acres are likely to be significant initially and 58.4 acres are likely to be significant after rehabilitation. Further reduction of the 58.4 acres would depend on natural revegetation and any other rehabilitation efforts. The amount of these impacts that end up irreversible depends on the degree of landform alternation and the effectiveness of rehabilitation and natural revegetation that occurs. Neither of these factors is known at this time.

TABLE 4-45: ALTERNATIVE 2 IMPACTS AND REHABILITATION

Area	Area Subject to Lease	Existing Adverse Impact Areas	Foreseeable Additional Area Disturbed per RFD		Area Susceptible to Significant Impacts if Developed		Likely Additional Significant Impacts		Resultant Total Significant Impacts Expected		Likely Rehabilitated	
			Pre Rehab *	Post Rehab *	Acres	% of Lease Area	Pre Rehab *	Post Rehab *	Pre Rehab *	Post Rehab *	On Site	Off Site
Piedra Blanca	2,815	266	22	12	2,475	87.92%	19.3	10.6	285.3	276.6	10.0	0.0
San Cayetano	13,444	1,264	38.4	16	11,484	85.42%	32.8	13.7	1296.8	1277.7	22.4	0.0
Sespe	12,882	1,980	35.2	12.1	10,500	81.51%	28.7	9.9	2008.7	1989.9	23.1	0.0
Rincon Creek	9,052	905	6	3	7,631	84.30%	5.1	2.5	910.1	907.5	3.0	0.0
South Cuyama	80,258	973	35.3	14	57,874	72.11%	25.5	10.1	998.5	983.1	21.3	0.0
La Brea Cyn.	9,273	502	8.1	4	8,062	86.94%	7.0	3.5	509.0	505.5	4.1	0.0
Figueroa Mtn.	8,745	574	6.1	3	7,821	89.43%	5.5	2.7	579.5	576.7	3.1	0.0
Lopez Canyon	2,257	50	6.1	3	2,196	97.30%	5.9	2.9	55.9	52.9	3.1	0.0
Monroe Swell	600	39	6.1	3	518	86.33%	5.3	2.6	44.3	41.6	3.1	0.0
<i>HOGPA Total</i>	<i>139,326</i>	<i>6,553</i>	<i>163.3</i>	<i>70.1</i>	<i>108,561</i>	<i>77.92%</i>	<i>135.0</i>	<i>58.4</i>	<i>6,688.0</i>	<i>6,611.4</i>	<i>93.2</i>	<i>0.0</i>
<i>Non HOGPA</i>	<i>627,541</i>	<i>40085</i>	<i>0</i>	<i>0</i>	<i>491,158</i>	<i>78.27%</i>	<i>0.0</i>	<i>0.0</i>	<i>40085.0</i>	<i>40085.0</i>	<i>0.0</i>	<i>0.0</i>
<b>Total</b>	<b>766,867</b>	<b>46,638</b>	<b>163.3</b>	<b>70.1</b>	<b>599,719</b>	<b>78.20%</b>	<b>135.0</b>	<b>58.4</b>	<b>46,773.0</b>	<b>46,696.4</b>	<b>93.2</b>	<b>0.0</b>

\* of construction activities

#### 4.5.7.3.7.5 Alternative 2 Short-term/Long-term Tradeoffs

Any scenic impact due to vegetation loss might naturally recover in the long-term, even if not revegetated in the short-term, provided topsoil is not removed, eroded, compacted or contaminated. However, certain scenic impacts that are the result of landform alterations, such as grading for well pads and cut and fill for roads, cannot necessarily be recontoured to the original landform. This can result in the landscape continuing to appear human-dominated into the long-term, which is also considered an irreversible impact.

#### 4.5.7.3.8 Impacts of Alternative 3 - Meet Forest Plan Direction

As a result of the specific lease stipulations, Alternative 3 meets current Forest Plan direction for scenic resources and is unlikely to result in significant scenic impacts.

The objective of the Alternative 3 scenario is to meet current Forest Plan direction. The Forest Plan requires meeting the adopted Visual Quality Objectives except under certain conditions. Under these conditions the Forest Supervisor has discretionary authority to allow minor adjustments that result in under-achievement of the VQOs by one level, provided an already

disturbed area of equal size to that initially disturbed is rehabilitated. This discretion is limited to certain management areas; the minimum VQO for each management area must be met; and cannot result in significant impacts. As a consequence, wherever this discretion is applied the Forest Plan is met. The amount of acres where the Forest Supervisor may consider under-achievement of adopted VQOs and potential rehabilitation areas are shown in Table 4-46.

TABLE 4-46: AREAS WHERE FOREST SUPERVISOR MAY ALLOW UNDER-ACHIEVEMENT OF ADOPTED VQOs AND POTENTIAL REHABILITATION AREAS UNDER ALTERNATIVE 3 LEASING SCENARIO

<i>HOGPA/non-HOGPA</i>	<i>Total Area</i>	<i>Area Where Forest Supervisor May Allow One Level of VQO Under Achievement</i>		<i>Potential Rehabilitation Areas (Area Where Potentially Significant Impacts are Currently Occurring)</i>	
		<i>acres</i>	<i>%</i>	<i>acres</i>	<i>%</i>
<i>HOGPAs</i>	<i>acres</i>	<i>acres</i>	<i>%</i>	<i>acres</i>	<i>%</i>
<i>Piedra Blanca</i>	2,815	2	0.1%	266	9.4%
<i>San Cayetano</i>	13,444	57	0.4%	1,264	9.4%
<i>Sespe</i>	12,882	185	1.4%	1,980	15.4%
<i>Rincon Creek</i>	9,052	33	0.4%	905	10.0%
<i>South Cuyama</i>	80,258	9,580	11.9%	973	1.2%
<i>La Brea Canyon</i>	9,273	688	7.4%	502	5.4%
<i>Figueroa Mountain</i>	8,745	324	3.7%	574	6.6%
<i>Lopez Canyon</i>	2,257	29	1.3%	50	2.2%
<i>Monroe Swell</i>	600	8	1.3%	39	6.5%
<i>Total HOGPAs</i>	139,326	10,906	7.8%	6,553	4.7%
<i>Non-HOGPA Area</i>	627,541	38,269	6.1%	40,085	6.4%
<b>Total Lease Area</b>	<b>766,867</b>	<b>49,175</b>	<b>6.4%</b>	<b>46,638</b>	<b>6.1%</b>

#### 4.5.7.3.8.1.1 Alternative 3 Direct and/or Indirect Impacts

All of the impacts associated with Alternative 1 are applicable to Alternative 3 as well since existing leases are entitled to continue as long as lease terms are met and production continues.

According to the RFD, Alternative 3 is expected to have 45 acres of ground-disturbing activities in the short-term and 31.5 acres in the long-term. Table 4-47 indicates there are 628,151 acres where these activities would not result in potentially significant impacts and 92,078 acres potentially susceptible to significant impacts by changing to a human-dominated landscape if developed.

Table 4-47 shows the amount of lands that could sustain disturbances with and without potentially incurring significant impacts, likely amount of impacts and amount of rehabilitation likely to occur. The application of the Alternative 3 stipulations have reduced the acres that could be susceptible to potentially significant impacts, if developed, from 599,719 in Alternative 2 to 92,078 in Alternative 3.

Table 4-47 shows:

- All VQO requirements are met, and
- Areas potentially susceptible to significant impacts result from the scenic condition changing to a human-dominated landscape if activities occurred there.

Under the Alternative 3 scenario oil and gas activities can occur anywhere within the area being considered for lease where surface occupancy is allowed. The amount of the land projected to be impacted in the RFD is 45 acres out of a total of 766,867 acres of lands proposed for lease. Of the 45 acres projected for disturbance, 8.7 acres could potentially result in significant impacts. Whether or not the resultant impacts are actually significant would depend on the context and intensity of the development. This is dependent on the specific development and actual location, which are both unknowns until development proposals are presented after leasing occurs.

TABLE 4-47: ALTERNATIVE 3 SCENIC CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential  Alternative 3 (acres)	Area Subject to Lease	Area Already Has Existing Adverse Impacts Which Could Increase if Developed	For Areas Not Already Adversely Impacted, Is The Area Expected To Meet Forest Plan Visual Quality Objectives (VQOs) If Developed?						For Areas Not Already Adversely Impacted, Is the Area Susceptible to Potentially Significant Impacts if Developed?		How Much Land is Estimated to be Impacted in the Reasonably Foreseeable Development Scenario (RFD)?	
			Yes			No			Yes	No	Initial	After Rehab
			Is the Area Expected to Change to a Human-Dominated Landscape if Developed?	Yes	No	Total	Is the Area Expected to Change to a Human-Dominated Landscape if Developed?	Yes				
Area			Yes	No	Total	Yes	No	Total	Yes	No		
Piedra Blanca	2,815	266	0	2,549	2,549	0	0	0	0	2,549	0.0	0.0
San Cayetano	13,444	1,264	75	12,105	12,180	0	0	0	75	12,105	3.0	3.0
Sespe	12,882	1,980	429	10,473	10,902	0	0	0	429	10,473	14.5	8.5
Rincon Creek	9,052	905	0	8,147	8,147	0	0	0	0	8,147	3.0	3.0
South Cuyama	80,258	973	28,174	51,111	79,285	0	0	0	28,174	51,111	21.5	14.0
La Brea Canyon	9,273	502	1,926	6,845	8,771	0	0	0	1,926	6,845	3.0	3.0
Figueroa Mtn.	8,745	574	390	7,781	8,171	0	0	0	390	7,781	0.0	0.0
Lopez Canyon	2,257	50	77	2,130	2,207	0	0	0	77	2,130	0.0	0.0
Monroe Swell	600	39	10	551	561	0	0	0	10	551	0.0	0.0
<b>Total HOGPAs</b>	<b>139,326</b>	<b>6,553</b>	<b>31,081</b>	<b>101,692</b>	<b>132,773</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31,081</b>	<b>101,692</b>	<b>45.0</b>	<b>31.5</b>
<b>Non-HOGPA</b>	<b>627,541</b>	<b>40,085</b>	<b>60,997</b>	<b>526,459</b>	<b>587,456</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>60,997</b>	<b>526,459</b>	<b>0.0</b>	<b>0.0</b>
<b>Total</b>	<b>766,867</b>	<b>46,638</b>	<b>92,078</b>	<b>628,151</b>	<b>720,229</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>92,078</b>	<b>628,151</b>	<b>45.0</b>	<b>31.5</b>

It is unlikely that any significant scenic impacts would result from the Alternative 3 leasing scenario. The only areas identified as potentially susceptible to significant impacts in Alternative 3 outside of the existing lease areas are:

- Where the Forest Supervisor Allows Under-achieving of VQOs. (Table 4-46)
- Where the VQOs allow a human-dominated landscape and the existing scenic conditions appear as a natural landscape.

By stipulation the Forest Supervisor cannot allow under achievement of VQO's if it results in potentially significant impacts.

The goal of Alternative 3 is to have any additional oil and gas activities in compliance with the Forest Plan. Note that oil and gas activities can change a natural appearing landscape to a human-dominated landscape and still be in compliance with the Forest Plan VQOs. For Alternative 3 this can occur where:

- *Surface occupancy is not constrained by stipulations as shown on the Alternative 3 map in the DEIS map packet,*
- *The adopted VQOs are modification or maximum modification, and*
- *The existing scenic condition is untouched, or existing activities appear unnoticed or represent only a minor disturbance.*

Thus, it would be possible to be in compliance with the Forest Plan and still incur potentially significant scenic impacts. However this is unlikely. The resultant human-dominated landscape could occur if the Forest Supervisor exercised discretion to allow under achievement of the adopted VQOs. However, by stipulation, this discretion will not be implemented where it would be expected to result in a significant scenic impact. As a result the only areas susceptible to significant scenic impacts under Alternative 3 are areas that would change to a human-dominated landscape. The context of the various locations was considered in the forest planning process when the VQOs were adopted and human-dominated landscapes were deemed acceptable in those locations. As a consequence, it is unlikely that these areas would actually sustain significant impacts.

#### **4.5.7.3.8.2 Opportunities to Decrease Existing Significant Impacts**

Application of Alternative 3 scenic stipulations presents the opportunity to reduce the amount of existing significant scenic impacts on LPNF through the off-site rehabilitation required in that stipulation. 4.2 acres of off-site rehabilitation are projected for Alternative 3 as shown in Table 4-48. Alternative 3 scenic stipulations allows for implementation of the Forest Supervisor's discretion to allow under-achieving of adopted VQOs by one level. This discretion will only be exercised where it will not result in significant impacts. The stipulations requires off-site rehabilitation mitigation in the amount of the initial acreage of disturbance or greater. This requirement is in addition to the rehabilitation requirements on-site. The net result would be a reduction in the amount of significant scenic impacts due to oil and gas activities.

Table 4-48 shows the acreage of existing impacts where rehabilitation could be applied and acreage of land subject to off-site rehabilitation if developed for each HOGPA and the non-HOGPA area.

#### **4.5.7.3.8.3 Alternative 3 - Forest Plan Compliance**

Stipulations for Alternative 3 were specifically developed to assure Forest Plan compliance. Stipulations were designed and tested using GIS modeling to determine how well the adopted VQOs would be met if the stipulations were applied. Stipulations were added until all of the

Forest Plan requirements were met. Consequently, Alternative 3 is in compliance with the scenic requirements of the Forest Plan.

#### **4.5.7.3.8.4 Alternative 3 Cumulative Impacts**

There are 46,638 acres within the lease study area that are currently experiencing adverse scenic impacts as a result of past and present activities such as existing leases, firebreaks and roads. Existing lease lands total 4,863 acres. Cumulative impacts from continuing existing leases as described under Alternative 1 would also occur under Alternative 3. Alternative 3 could lease an additional 753,584 acres. There are 92,078 acres of the study area that could change to a human-dominated landscape if developed. Changing to a human-dominated landscape can be a significant impact to scenic resources depending on the context and intensity of the specific development. However, the RFD foresees 45 acres of disturbance for Alternative 3 before rehabilitation. Development would be in accordance with Forest Plan requirements. Furthermore, the areas that are projected to change to a human-dominated landscape if developed are areas where the VQOs allow for a human-dominated landscape. The context and anticipated intensity was considered in determining the VQOs and it is most likely that impacts would not be significant there. Even though it's unlikely the alternative would result in additional significant impacts, the impacts that did result would be adding to a cumulative impact situation that is already significant.

#### **4.5.7.3.8.5 Alternative 3 Irreversible/Irretrievable Impacts**

Irreversible and irretrievable impacts from existing leases as described under Alternative 1 would also occur under Alternative 3. Additionally, Alternative 3 would have an initial irretrievable impact of up to 45 acres before rehabilitation. This impact is expected to be reduced to 31.5 acres after rehabilitation. Of these impacts, 8.7 acres could be significant initially and 5.8 acres could be significant after rehabilitation. Further reduction of the 5.8 acres would depend on natural revegetation and any other rehabilitation efforts. The amount of these impacts that end up irreversible depends on the degree of landform alternation and the amount natural revegetation that occurs. Neither of these factors is known at this time. 4.2 acres currently being impacted would be expected to be rehabilitated under Alternative 3.

#### **4.5.7.3.8.6 Alternative 3 Short-term/Long-term Tradeoffs**

Alternative 3 scenic stipulation #2 offers the opportunity to rehabilitate some of the existing long-term scenic impacts of previous mining and other activities. There are a total of 49,175 acres within the study area that would require an equal amount of off-site rehabilitation if leased and developed. It is estimated that 4.2 acres of the projected 45 acres of surface disturbance would be in areas requiring off-site rehabilitation. This rehabilitation is in addition to the on-site rehabilitation requirements.

TABLE 4-48: ALTERNATIVE 3 IMPACTS AND REHABILITATION

Area	Area Subject to Lease	Existing Significant Impact Areas	Foreseeable Additional Area Disturbed per RFD		Area Potentially Susceptible to Significant Impacts if Developed		Likely Additional Potentially Significant Impacts		Resultant Potentially Significant Impacts Expected		Areas Subject to Off-Site Rehabilitation if Developed		Likely Rehabilitated Areas	
			Pre Rehab *	Post Rehab *	Acres	% of Lease Area	Pre Rehab *	Post Rehab *	Pre Rehab *	Post Rehab *	On Site	Off Site	Pre Rehab *	Post Rehab *
Piedra Blanca	2,815	266	0.0	0.0	0	0.0%	0.0	0.0	266.0	266.0	266	9.4%	0.0	0.0
San Cayetano	13,444	1,264	3.0	3.0	75	0.6%	0.0	0.0	1,264.0	1,264.0	1,264	9.4%	0.0	0.3
Sespe	12,882	1,980	14.5	8.5	429	3.3%	0.5	0.3	1,980.5	1,980.3	1,980	15.4%	6.0	2.2
Rincon Creek	9,052	905	3.0	3.0	0	0.0%	0.0	0.0	905.0	905.0	905	10.0%	0.0	0.3
South Cuyama	80,258	973	21.5	14.0	28,174	35.1%	7.5	4.9	980.5	977.9	973	1.2%	0.0	0.0
La Brea Cyn.	9,273	502	3.0	3.0	1,926	20.8%	0.6	0.6	502.6	502.6	502	5.4%	7.5	1.2
Figueroa Mtn.	8,745	574	0.0	0.0	390	4.5%	0.0	0.0	574.0	574.0	574	6.6%	0.0	0.2
Lopez Canyon	2,257	50	0.0	0.0	77	3.4%	0.0	0.0	50.0	50.0	50	2.2%	0.0	0.0
Monroe Swell	600	39	0.0	0.0	10	1.7%	0.0	0.0	39.0	39.0	39	6.5%	0.0	0.0
<i>HOGPA Total</i>	<i>139,326</i>	<i>6,553</i>	<i>45.0</i>	<i>31.5</i>	<i>31,081</i>	<i>22.3%</i>	<i>8.7</i>	<i>5.8</i>	<i>6,561.7</i>	<i>6,558.8</i>	<i>6,553</i>	<i>4.7%</i>	<i>13.5</i>	<i>4.2</i>
<i>Non HOGPA</i>	<i>627,541</i>	<i>40,085</i>	<i>0.0</i>	<i>0.0</i>	<i>60,997</i>	<i>9.7%</i>	<i>0.0</i>	<i>0.0</i>	<i>40,085.0</i>	<i>40,085.0</i>	<i>40,085</i>	<i>6.4%</i>	<i>0.0</i>	<i>0.0</i>
<b>Total</b>	<b>766,867</b>	<b>46,638</b>	<b>45.0</b>	<b>31.5</b>	<b>92,078</b>	<b>12.0%</b>	<b>8.7</b>	<b>5.8</b>	<b>46,646.7</b>	<b>46,643.8</b>	<b>46,638</b>	<b>6.1%</b>	<b>13.5</b>	<b>4.2</b>

\* of construction activities

Certain scenic impacts that are the result of landform alterations other than just vegetation removal such as grading for well pads and cut and fill for roads cannot necessarily be recontoured to the original landform nor is it a lease requirement under the existing leases. This can result in the landscape continuing to appear human-dominated into the long-term.

#### 4.5.7.3.9 Impacts of Alternative 4 - Emphasize Surface Resources

Development of new leases under the Alternative 4 scenario would result in the Forest Plan scenic requirements being met, no additional significant scenic impacts occurring and possibly some existing landscape impacts being rehabilitated.

All of the impacts associated with Alternative 1 are applicable to Alternative 4 as well since existing leases are entitled to continue as long as lease terms are met and production continues.

The scenic objective of the Alternative 4 leasing scenario, "Emphasize Surface Resources," is to allow additional oil and gas leasing in a manner that results in the adopted VQOs being met which result in no significant impacts and provides an incentive for lessees to rehabilitate landscapes that are currently impacted. The Forest Supervisor's discretionary authority to allow the under-achievement of VQOs in certain circumstances is not implemented in Alternative 4.



Alternative 4 stipulations were developed to assure that any oil and gas development under new leases would meet the Forest Plan and not result in any potentially significant impacts. To achieve this any development would need to:

- A. Meet the adopted VQOs and
- B. Not result in landscapes changing from natural appearing to human-dominated.

This is achieved through the additional Alternative 4 scenic stipulations described in Chapter 2.

**4.5.7.3.9.1 Alternative 4 Direct and/or Indirect Impacts**

The scenic consequences of Alternative 4 are displayed in Tables 4-49 and 4-50. According to the RFD, Alternative 4 is expected to have 43 acres of ground-disturbing activities in the short-term and 31.5 acres in the long-term. Given Alternative 4 stipulations, development would not result in potentially significant impacts or any changes to a human-dominated landscape. Within the study area there are 14,742 acres that would require off-site rehabilitation in addition to on-site rehabilitation if developed. There are 46,829 acres currently impacted where this off-site rehabilitation could occur. However, as shown in Table 4-51, only 0.8 acres of off-site rehabilitation are projected to be required.

TABLE 4-49: ALTERNATIVE 4 CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential <i>Alternative 4</i> (acres)	Area Subject to Lease	Area Already Has Existing Adverse Impacts Which Could Increase if Developed	For Areas Not Already Adversely Impacted, Is The Area Expected To Meet Forest Plan Visual Quality Objectives (VQOs) If Developed?						For Areas Not Already Adversely Impacted, Is the Area Susceptible to Potentially Significant Impacts if Developed?		How Much Land is Estimated to be Impacted in the Reasonably Foreseeable Development Scenario (RFD)?	
			Yes			No			Yes	No	Initial	After Rehab
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?	Yes	No	Total	Is the Area Expected to Change to a Human-dominated Landscape if Developed?	Yes				
Area			Yes	No	Total	Yes	No	Total	Yes	No	Initial	After Rehab
<i>Piedra Blanca</i>	2,815	266	0	2,549	2,549	0	0	0	0	2,549	0.0	0.0
<i>San Cayetano</i>	13,444	1,264	0	12,180	12,180	0	0	0	0	12,180	3.0	3.0
<i>Sespe</i>	12,882	1,980	0	10,902	10,902	0	0	0	0	10,902	14.5	8.5
<i>Rincon Creek</i>	9,052	905	0	8,147	8,147	0	0	0	0	8,147	3.0	3.0
<i>South Cuyama</i>	80,258	973	0	79,285	79,285	0	0	0	0	79,285	19.5	14.0
<i>La Brea Canyon</i>	9,273	502	0	8,771	8,771	0	0	0	0	8,771	3.0	3.0
<i>Figueroa Mtn.</i>	8,745	574	0	8,171	8,171	0	0	0	0	8,171	0.0	0.0
<i>Lopez Canyon</i>	2,257	50	0	2,207	2,207	0	0	0	0	2,207	0.0	0.0
<i>Monroe Swell</i>	600	39	0	561	561	0	0	0	0	561	0.0	0.0
<b>Total HOGPAs</b>	<i>139,326</i>	<i>6,553</i>	<i>0</i>	<i>132,773</i>	<i>132,773</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>132,773</i>	<i>43.0</i>	<i>31.5</i>
<b>Non-HOGPA Area</b>	<i>627,541</i>	<i>40,085</i>	<i>0</i>	<i>587,456</i>	<i>587,456</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>587,456</i>	<i>0.0</i>	<i>0.0</i>
<b>Total</b>	<i>766,867</i>	<i>46,638</i>	<i>0</i>	<i>720,229</i>	<i>720,229</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>720,229</i>	<i>43.0</i>	<i>31.5</i>

The RFD estimates of acres disturbed are further reduced from the 45 acres for Alternative 3, to 43 acres in Alternative 4. This is only a reduction of two acres from Alternative 3. However, the location of those acres would be so restricted that the Forest Plan VQOs would be met or exceeded in all cases and no landscape would be changed to human-dominated. Lease stipulations require rehabilitation of an equal amount of land to that disturbed, where the application of BLM Standard Lease Terms meet, but do not exceed, the adopted VQOs. Standard Lease Terms alone are only allowed if their application exceeds the VQOs by at least one level.

In addition, Alternative 4 requires off-site landscape rehabilitation in areas that are currently impacted if the VQOs in areas proposed for development are not exceeded. This is in addition to on-site rehabilitation requirements. Development without any scenic lease stipulations is only permitted where the VQOs are exceeded. Impact mitigating stipulations are required wherever VQOs are not exceeded. Consequently, Alternative 4 would not result in any new significant impacts except in existing lease areas. Furthermore, rehabilitation of some currently impacted landscapes could occur.

Table 4-50 shows the number of acres in each HOGPA and the non-HOGPA area that would require off-site rehabilitation and areas where such rehabilitation could occur. As shown in Table 4-51, it's estimated that Alternative 4 lease stipulation # 2 would result in 0.8 acres of rehabilitation.

TABLE 4-50: ALTERNATIVE 4: LANDS REQUIRING AND CANDIDATE LANDS FOR OFF-SITE REHABILITATION

<i>HOGPA/non-HOGPA</i>	Total Lease Study Area	Lands that require off-site rehabilitation if developed (Lands where VQO achievement level is 0 on Potential Scenic Consequences of Alternative 4 Map; designated in yellow)		Candidate lands for off-site mitigation	
		acres	%	acres	%
<b>HOGPAs</b>	acres	acres	%	acres	%
<i>Piedra Blanca</i>	2,815	73	2.6%	266	9.45%
<i>San Cayetano</i>	13,444	173	1.3%	1,264	9.40%
<i>Sespe</i>	12,882	449	3.5%	1,980	15.37%
<i>Rincon Creek</i>	9,052	445	4.9%	905	10.00%
<i>South Cuyama</i>	80,258	211	0.3%	973	1.21%
<i>La Brea Canyon</i>	9,273	41	0.4%	502	5.41%
<i>Figueroa Mountain</i>	8,745	507	5.8%	574	6.56%
<i>Lopez Canyon</i>	2,257	34	1.5%	50	2.22%
<i>Monroe Swell</i>	600	11	1.8%	39	6.50%
<i>Total HOGPAs</i>	<i>139,326</i>	<i>1,944</i>	<i>1.4%</i>	<i>6,553</i>	<i>4.70%</i>
<i>Non-HOGPA Area</i>	<i>627,541</i>	<i>12,798</i>	<i>2.0%</i>	<i>40,085</i>	<i>6.39%</i>
<b>Total Lease Area</b>	<b>766,867</b>	<b>14,742</b>	<b>1.9%</b>	<b>46,638</b>	<b>6.08%</b>

#### 4.5.7.3.9.2 Alternative 4 Cumulative Impacts

There are 46,638 acres within the lease study area that are currently experiencing adverse scenic impacts as a result of past and present activities such as existing leases, firebreaks and roads. Existing lease lands total 4,863 acres. Cumulative impacts from continuing existing leases as described under Alternative 1 would also occur under Alternative 4. Alternative 4 could lease an additional 753,584 acres. Alternative 4 is not expected to add any more potentially significant scenic impacts beyond the 7.1 acres predicted for the continuation of existing leases. Furthermore, there could be rehabilitation of some of the existing impacts under Alternative 4 scenic stipulation #2. The amount of off-site rehabilitation of existing impacts would depend on the location of the development; but based on the percentage of area in the study area where this stipulation would apply and the projected amount of surface disturbance only 0.8 acres of off-site rehabilitation is projected. This is shown in Table 4-51.

TABLE 4-51: ALTERNATIVE 4 REHABILITATION

Area	Area Subject to Lease	Existing Significantly Impacted Areas	Foreseeable Additional Area Disturbed per RFD		Areas Subject to Off-Site Rehabilitation if Developed		Likely Rehabilitated	
			Pre Rehab *	Post Rehab *	Acres	% of Lease Area	on	off Site *
Piedra Blanca	2,815	266	0.0	0.0	73	2.6%	0.0	0.0
San Cayetano	13,444	1,264	3.0	3.0	173	1.3%	0.0	0.0
Sespe	12,882	1,980	14.5	8.5	449	3.5%	6.0	0.5
Rincon Creek	9,052	905	3.0	3.0	445	4.9%	0.0	0.1
South Cuyama	80,258	973	19.5	14.0	211	0.3%	5.5	0.2
La Brea Cyn.	9,273	502	3.0	3.0	41	0.4%	0.0	0.0
Figuroa Mtn.	8,745	574	0.0	0.0	507	5.8%	0.0	0.0
Lopez Canyon	2,257	50	0.0	0.0	34	1.5%	0.0	0.0
Monroe Swell	600	39	0.0	0.0	11	1.8%	0.0	0.0
<i>HOGPA Total</i>	<i>139,326</i>	<i>6,553</i>	<i>43.0</i>	<i>31.5</i>	<i>1,944</i>	<i>1.4%</i>	<i>11.5</i>	<i>0.8</i>
<i>Non HOGPA</i>	<i>627,541</i>	<i>40,085</i>	<i>0.0</i>	<i>0.0</i>	<i>12,798</i>	<i>2.0%</i>	<i>0.0</i>	<i>0.0</i>
Total	766,867	46,638	43.0	31.5	14,742	1.9%	11.5	0.8

\* of construction activities

#### 4.5.7.3.9.3 Alternative 4 Irreversible/Irretrievable Impacts

Irreversible and Irretrievable impacts from existing leases as described under Alternative 1 would also occur under Alternative 4. Additionally, Alternative 4 would have an initial irretrievable impact of up to 43 acres before rehabilitation. This impact is expected to be reduced to 31.5 acres after rehabilitation. None of these impacts are expected to be significant. Further reduction of the 31.5 acres would depend on natural revegetation and any other rehabilitation efforts. The amount of these impacts that end up irreversible depends on the

degree of landform alternation and the amount natural revegetation that occurs. Neither of these factors is known at this time. Rehabilitation of 0.8 acres of current irretrievable impacts is projected.

#### **4.5.7.3.9.4 Alternative 4 Short-term/Long-term Tradeoffs**

Scenic impacts due to vegetation loss could naturally recover in the long-term even if not revegetated in the short-term. However, certain scenic impacts that are the result of landform alterations such as grading for well pads and cut and fill for roads cannot necessarily be recontoured to the original landform nor is it a lease requirement under the existing leases. This can result in the landscape continuing to appear human-dominated into the long-term.

#### **4.5.7.3.10 Impacts of Alternative 4a - Alternative 4 with Roadless Emphasis**

Alternative 4a is a modification to Alternative 4 in which the Inventoried Roadless Areas (IRAs) are allocated to NSO. Alternative 4 meets the Forest Plan and is not expected to result in any significant impacts to scenic resources due to the mitigating stipulations applied. Alternative 4a increases the amount of lands under the NSO stipulations, reducing the potential impacts even further below the level of significance.

#### **4.5.7.3.11 Impacts of Alternative 5 - Combination of Alternative 3 and 4**

The projected scenic impacts of Alternative 5 are the same as Alternative 3.

Alternative 5 utilizes the Alternative 4 stipulations for biological resources and Alternative 3 stipulations for all other resources within the HOGPAs. In the non-HOGPA area all Alternative 4 stipulations apply. In addition, lands are not leased that would otherwise have an NSO stipulation and cannot be reached by conventional slant drilling.

Alternative 5 scenic impacts are projected to be the same as Alternative 3 because of the following rationale that addresses potential difference between the two alternatives. There are no RFD projections for oil and gas activities in the non-HOGPA area so no scenic impacts are expected there in any alternative other than Alternative 1. Any area otherwise under an NSO stipulation that couldn't be reached by slant drilling would not be leased in Alternative 5. However, whether an area is not leased or no surface occupancy is allowed, there are no scenic impacts. The Alternative 4 biological stipulations applied in the HOGPAs in Alternative 5 could make a difference. However, these biological stipulations fall in locations that already have equal or more stringent stipulations in Alternative 3 stemming from other resource concerns.

#### **4.5.7.3.12 Impacts of Alternative 5a - Alternative 5 with Roadless Emphasis**

Alternative 5a is a modification to Alternative 5 in which the Inventoried Roadless Areas (IRAs) are allocated to NSO.

The difference between Alternatives 4a and 5a is that:

- *Alternative 5a has the basis of Alternative 3 stipulations (except biological) within the HOGPAs while 4a is based on Alternative 4 stipulations and*

- *Alternative 5a would not lease areas otherwise NSO that cannot be accessed by directional drilling.*

Regarding the first difference, the effect of applying the NSO stipulation to IRAs in both Alternative 4a and 5a overshadows the differences between the alternatives. This can readily be seen on the maps for these Alternatives in the DEIS map packet.

On the second point, scenic impacts are indifferent to whether an area is not leased or is under an NSO stipulation. In both cases the land is not disturbed and there are no scenic impacts.

As a result the scenic impacts and Forest Plan compliance of Alternatives 4a and 5a are the same. Both alternatives meet the Forest plan scenic requirements and there are no projected significant impacts.

#### **4.5.7.3.13 Impacts of the New Preferred Alternative**

The New Preferred Alternative would have slightly less impact on scenery than Alternative 5a. This alternative proposes leasing the South Cuyama, Sespe, and San Cayetano HOGPAs with Alternative 5a stipulations. The remaining HOGPAs – Piedra Blanca, Figueroa Mtn., Monroe Swell, Lopez Canyon, La Brea, and Rincon Creek – would not be leased. Impacts on scenery that might be associated with development in these HOGPAs would not occur under the New Preferred Alternative.

#### **4.5.7.4 *Comparison of Alternatives***

Table 4-52 shows how the scenic impact sensitivity to oil and gas development varies by alternative, for alternatives 1 – 4, for each HOGPA and the non-HOGPA area. The table shows the existing conditions and how much additional lands would be susceptible to potentially significant impacts for each alternative.

Although Alternative 1 does not allow any new leasing, additional lands, currently leased but not currently developed, are susceptible to development under existing lease rights. These rights to develop continue as long as the lease is producing and the current lease terms are met. Alternative 1 describes the minimum level of development that is projected to occur and is a part of each of the other alternatives.

Alternative 2 has the least constraints on oil and gas development and would make 599,719 acres vulnerable to potentially significant impacts if leased.

Although Alternative 3 meets the Forest Plan, it still would add 92,078 acres of land above Alternative 1 that would be potentially susceptible to becoming a human-dominated landscape if leased and developed and thus vulnerable to potentially significant impacts. However, these vulnerable areas are lands that have adopted VQOs that allow human-dominated landscapes or Forest Supervisor discretion to allow under-achievement. As a result, impacts would probably not be significant given the specific context and intensity of the activity.

Alternative 4 would not allow development of any additional leased lands above Alternative 1 that would be vulnerable to potentially significant impacts if developed. Alternative 4 requires all VQOs to be met or exceeded. If VQOs are exceeded no off-site rehabilitation is required. If VQOs are met, but not exceeded, off-site rehabilitation of land currently impacted is required in an amount equal to the new disturbance.

Alternative 5 would have the same impacts as Alternative 3.

Alternatives 4a and 5a would have the same impact as Alternative 4.

The New Preferred Alternative would have slightly less scenic impact than Alternative 5a.

#### ***4.5.7.5 Analysis of Issues***

Table 4-53 documents how the alternatives respond to the scenic issues identified in scoping. The impacts for Alternative 1 are not current impacts but those that could result from additional activities in the future under existing leases. The Alternative 1 impacts could occur in all alternatives. The impacts listed for the action alternatives are in addition to Alternative 1 impacts.

TABLE 4-52: IMPACT SENSITIVITY BY ALTERNATIVE

Comparison of Alternatives Excluding Existing Conditions: Additional Areas Susceptible to Impact (acres)	Existing Conditions		Alternative 1 No Action - No New Leasing		Alternative 2 Emphasize Oil & Gas Development		Alternative 3 Meet Forest Plan Direction		Alternative 4 Emphasize Surface Resources		
	Lease Study Area	Existing Lease Areas	Potentially Significant Impacts Occurring	RFD Estimate of Acres Impacted	Area Susceptible to Significant Impacts	RFD Estimate of Acres Impacted	Area Susceptible to Significant Impacts	RFD Estimate of Acres Impacted	Area Susceptible to Significant Impacts	RFD Estimate of Acres Impacted	
Area			Lease Study Area	No	Yes	No	Yes	No	Yes	No	Yes
<b>HOGPAs</b>											
<i>Piedra Blanca</i>	2,815	0	266	0	0	74	2,475	2,549	0	0.0	2,549
<i>San Cayetano</i>	13,444	182	1,264	5	126	696	11,484	12,105	75	3.0	12,180
<i>Sespe</i>	12,882	2,875	1,980	59	1,101	402	10,500	10,473	429	14.5	10,902
<i>Rincon Creek</i>	9,052	0	905	0	0	516	7,631	8,147	0	3.0	8,147
<i>South Cuyama</i>	80,258	6,216	973	720	4,805	21,411	57,874	51,111	28,174	19.5	79,285
<i>La Brea Canyon</i>	9,273	0	502	0	0	709	8,062	6,845	1,926	3.0	8,771
<i>Figueroa Mtn.</i>	8,745	0	574	0	0	350	7,821	7,781	390	0.0	8,171
<i>Lopez Canyon</i>	2,257	0	50	0	0	11	2,196	2,130	77	0.0	2,207
<i>Monroe Swell</i>	600	0	39	0	0	43	518	551	10	0.0	561
<b>HOGPA Total</b>	139,326	9,272	6,553	784	6,032	24,212	108,561	101,692	31,081	43.0	132,773
<i>Non HOGPA</i>	627,541	5,346	40,085	838	3,755	96,298	491,158	526,459	60,997	0.0	587,456
<b>Total</b>	<b>766,867</b>	<b>14,618</b>	<b>46,638</b>	<b>1,622</b>	<b>9,787</b>	<b>120,510</b>	<b>599,719</b>	<b>628,151</b>	<b>92,078</b>	<b>43.0</b>	<b>720,229</b>

TABLE 4-53: RESPONSE TO ISSUES BY ALTERNATIVES

Issues	Alt. 1	Alt. 2	Alts. 3, 5 & 5a	Alts. 4 & 4a	Preferred Alternative
1. Area along the southern forest boundary	Potentially significant impacts from existing lease activities in the San Cayetano and Sespe areas	Potentially significant impacts from lease activities in the San Cayetano, Sespe and Rincon areas	Most of the viewshed is protected by NSO and LSU stipulations. Small areas in the non-HOGPA area north of San Cayetano HOGPA are subject to impacts if Forest Supervisor allows under achievement of VQOs. However, area is in non-HOGPA where no development is anticipated.	Viewsheds protected by NSO and LSU stipulations. Some existing impact areas may be rehabilitated.	Viewsheds protected by NSO and LSU stipulations.
2. Tepesquet Peak	Not impacted	Potentially scenic impacts from development in La Brea Canyon HOGPA.	Forest Plan requirements are met but VQOs allow for a human-dominated landscape where a natural appearing landscape currently exists within the La Brea Canyon HOGPA and surrounding area. Since only 3 acres are projected to be developed if leased the impact isn't likely to be significant.	Viewsheds protected by NSO and LSU stipulations. Some existing impact areas may be rehabilitated.	Not impacted
3. Lopez Reservoir	Not impacted	Potentially significant impacts from development in Lopez Canyon HOGPA	Adjacent to Lopez Canyon HOGPA, but no development is projected in the HOGPA for Alternative 3.	Viewshed protected by NSO and LSU stipulations. No development is projected in the Lopez Canyon HOGPA for Alternative 4.	Not impacted
4. Hwy 33 south of the crest	Not impacted	Potentially significant impacts from development in Piedra Blanca HOGPAs	The viewsheds are protected by NSO and LSU stipulations.	Viewshed protected by NSO and LSU stipulations.	Not impacted
5. Ojai Valley viewshed.	Not impacted	Potentially significant impacts in the San Cayetano and Rincon Creek HOGPAs	3 acres of development projected for Rincon Creek HOGPA, but the viewsheds are protected by NSO and LSU stipulations.	Viewshed protected by NSO and LSU stipulations.	Viewshed protected by NSO and LSU stipulations.



Issues	Alt. 1	Alt. 2	Alts. 3, 5 & 5a	Alts. 4 & 4a	Preferred Alternative
6. Pine Mountain	Not impacted	Potentially significant impacts from development in Piedra Blanca HOGPA	No development projected in Piedra Blanca HOGPA.	No development projected in Piedra Blanca HOGPA. Viewshed protected by NSO and LSU stipulations.	Not impacted
7. Arroyo Seco and Upper San Antonio River	Not impacted	Lands in the area are sensitive to oil and gas development activities but no activities are reasonably foreseeable.	No activities are reasonably foreseeable. Leases are allowed but with stipulations that require Forest Plan direction be met.	No development projected in area. Viewshed protected by NSO and LSU stipulations.	Not impacted
8. Figueroa Mountain	Not impacted	Potentially significant impacts from development in Figueroa Mountain HOGPA	No impacts expected. No development is projected in Figueroa Mountain HOGPA	No development projected in area. Viewshed protected by NSO and LSU stipulations.	Not impacted
9. Santa Lucia Memorial Park	Not impacted	Lands in the area are sensitive to oil and gas development activities but no activities are reasonably foreseeable.	No activities are reasonably foreseeable in the area.	No development projected in area. Viewshed protected by NSO and LSU stipulations.	Not impacted
10. Cuyama Valley solitude	Potentially significant impacts from existing leases in the eastern portion of South Cuyama area	Potentially significant impacts from development in the South Cuyama HOGPA	Possible impacts from development in the South Cuyama HOGPA where VQOs allow human-dominated landscapes.	Viewsheds protected by NSO and LSU stipulations. Some existing impact areas may be rehabilitated.	Viewsheds protected by NSO and LSU stipulations.
11. Rock Front – SLRD – off 166 w/ Sierra Madre Road intersection	Not impacted	Lands in the area are sensitive to oil and gas development activities but no activities are reasonably foreseeable.	No activities are reasonably foreseeable in the area.	No development projected in area. Viewshed protected by NSO and LSU stipulations.	Not impacted
12. Recommend that no leases be allowed in VQO “retention” areas, wilderness access areas, and viewsheds of lands with high recreational values.	No additional leases allowed	Additional leases allowed. Impacts to areas of concern could occur	Leases are allowed but with NSO and LSU stipulations that require VQOs to be met.	Leases are allowed but with NSO and LSU stipulations that protect specific concerns.	Leases are allowed but with NSO and LSU stipulations that require VQOs to be met.

Issues	Alt. 1	Alt. 2	Alts. 3, 5 & 5a	Alts. 4 & 4a	Preferred Alternative
13. Lake Casitas	Not impacted	Potentially significant impacts from leases in the Rincon area	NSO and LSU stipulations will prevent any significant impacts from potential development in the Rincon Creek HOGPA.	Viewsheds protected by NSO and LSU stipulations. Some existing impact areas may be rehabilitated.	Not impacted
14. Lake Cachuma	Not impacted	Oil and gas development in the Figueroa Mountain HOGPA could be visibly evident from Highway 154 and Lake Cachuma.	NSO and LSU stipulations will prevent any significant impacts from potential development in the Figueroa Mountain HOGPA.	Viewsheds protected by NSO and LSU stipulations.	Not impacted
15. Senior Canyon	Not impacted	Lands in the area are sensitive to oil and gas development activities but no activities are reasonably foreseeable.	In the non-HOGPA area where no activities are reasonably foreseeable. NSO and LSU stipulations will prevent any significant impacts.	Viewsheds protected by NSO and LSU stipulations.	Viewsheds protected by NSO and LSU stipulations.
16. Visibility of oil and gas development from Highway 101, Highway 154, Camino Cielo Rd., Happy Canyon Rd., Figueroa Mountain Rd., trails and campgrounds, and the vicinity of Sierra Madre ridge.	Views from Sierra Madre ridge may be impacted from activities in the existing leases in the eastern portion of the South Cuyama area. The rest of the concern areas would not be impacted.	Development in Rincon Creek HOGPA may impact views from Highway 101 and Highway 154. Views from Camino Cielo Road would not be significantly impacted. Views from Happy Canyon Road, Figueroa Mountain Road, trails and campgrounds could be impacted from development in the Figueroa Mountain HOGPA. Views from Sierra Madre ridge could be impacted from development in the South Cuyama HOGPA.	Potential impacts regarding Figueroa Mountain Road, trails, and campground, where VQOs allow human-dominated landscapes. Impacts are not expected to be significant. No significant impacts expected in other areas of concern due to either no development projected and/or NSO and LSU stipulations preventing any significant impacts.	Viewsheds protected by NSO and LSU stipulations. Some existing impact areas may be rehabilitated.	Viewsheds protected by NSO and LSU stipulations.
17. "Dark skies"	Potential for increased impact to "dark skies" in Sespe, San Cayetano, and South Cuyama HOGPAs.	Potential for increased impact to "dark skies" in all HOGPAs. May be more significant in Sespe, San Cayetano, and South Cuyama HOGPAs and non-HOGPA.	LSU and NSO stipulations should mitigate potential dark sky impacts from key view points.	LSU and NSO stipulations should mitigate potential dark sky impacts from key view points.	LSU and NSO stipulations should mitigate potential dark sky impacts from key view points.

Issues	Alt. 1	Alt. 2	Alts. 3, 5 & 5a	Alts. 4 & 4a	Preferred Alternative
18. Mountains behind Montecito	Not impacted	This area is in the non-HOGPA area. Although this area is subject to being leased under Alternative 2 and at risk of significant impacts if developed, no reasonably foreseeable oil and gas activities are projected in the non-HOGPA area.	This is in the non-HOGPA area where no activities are reasonably foreseeable. NSO and LSU stipulations will prevent any significant impacts from any development.	No activities expected that would cause impacts. Viewsheds protected by NSO and LSU stipulations.	Not impacted
19. VQO should be "management activities are not visually evident."	Adopted Forest VQOs are set. It is not the purpose of this study to change adopted VQOs.	Adopted Forest VQOs are set. It is not the purpose of this study to change adopted VQOs.	Adopted Forest VQOs are set. It is not the purpose of this study to change adopted VQOs.	Adopted Forest VQOs are set. It is not the purpose of this study to change adopted VQOs.	Adopted Forest VQOs are set. It is not the purpose of this study to change adopted VQOs.
20. Impact on Solitude	Solitude within the viewsheds of the South Cuyama, San Cayetano, and Sespe areas may be adversely impacted.	Solitude within the viewsheds of the HOGPAs and non-HOGPA could be impacted.	Solitude within the viewsheds of the HOGPAs and non-HOGPA may be adversely impacted where VQOs allow a human-dominated landscape either directly or via Forest Supervisor's discretion to lower VQOs one level. Impacts are not expected to be significant.	Viewsheds protected by NSO and LSU stipulations.	Solitude within the viewsheds of the 3 HOGPAs may be adversely impacted where VQOs allow a human-dominated landscape either directly or via Forest Supervisor's discretion to lower VQOs one level. Impacts are not expected to be significant.

## 4.5.8 Safety and Hazards

This section addresses the possible affects of fire, geologic, and spill and well blowout hazards.

### 4.5.8.1 *Fire Hazards*

There is no past history of oil related wildfire causing any long-term losses to resources but there have probably been some short-term losses. There has been no major damage to oil and gas facilities as the result of fire. Wild fires do occur on the Los Padres National Forest. As discussed in Chapter 3, some minor damage to equipment has occurred as a result of wild fires in the areas. However, none of the damage has resulted in a release of hazardous materials into the environment from the existing oil production facilities. There has been no irreversible losses to resources due to past oil related wildfires. There has been some short-term irretrievable loss, especially to the visual resource for 1 to 2 years after the fire.

**PROSPECTING:** The aerial activities included under the prospecting phase should have little impact. Any of the associated “on-the-ground” activities increase the possibility of fires due to possible careless use of fire.

Off-road travel during seismic work does pose a risk of fire from exhaust systems or sparks. Blasting with dynamite would also be a fire hazard.

Any road construction at minimal standards introduces a high fire risk because it offers little buffer between vehicle exhaust systems and vegetation. The road construction increases access for Forest administration and protection purposes, and also allows the public greater access, which can also increase fire risk.

**EXPLORATION:** As the standard of road construction increases in the exploratory phase, the fire risk decreases. Other effects mentioned in the prospecting phase also apply during exploration. The additional personnel, equipment, and activity associated with wildcat wells and pads present an increased risk of ignition. As wildcat drilling begins, the chance of a blowout is also introduced. The probability of such an occurrence has been greatly decreased by the use of required safeguards. (Reference: BLM Onshore Order #2 and California regulations requiring the use of blowout prevention equipment; see Section 4.3.3.5.1.1. of this document.) Should a blowout occur, the oil and other hydrocarbon products present would fuel the fire if one were ignited.

**DEVELOPMENT AND PRODUCTION:** Pumping jack motors, which can potentially catch fire, add to the fire hazard during this phase. If a combustion engine is used, it has the added disadvantage of possibly igniting its fuel source.

There is a small danger of spills and associated fires from pipelines used to transport the oil. This risk decreases if the pipelines are in an easily accessible location, such as alongside roads.

The presence of petroleum facilities, such as storage tanks and separators, may complicate fighting fires. Not only can these areas be the source of a fire, but they will also require protection should a fire start near them.

**ABANDONMENT:** By decreasing or eliminating activities in the lease area, abandonment will lower the risk of fires. If the abandoned well is converted to produce water, it may be used for fire suppression

#### **4.5.8.1.1 Fire Prevention Measures**

The standard lease terms require the lessee to do all in their power to prevent and suppress wildfires. Preparation of a fire prevention and suppression plan is the means of complying with these standard requirements (Forest Service Manual 5115.2, 10/80, R-5 Supplement 81). The preparation and enforcement of a “fire plan,” decreases the likelihood that an escaped wildfire would become a major fire.

A “fire plan” normally does the following:

- Assigns responsibility to key individual(s) by name
- Defines the project area by map or written description;
- Shows tool and equipment requirements for the lessee;
- Points out curtailment of project activities of the lessee based on a fire danger rating system,
- Enumerates the general provisions of good fire prevention practices, and
- Establishes fire prevention and suppression provisions.

For current operations in the Sespe and Cuyama oil fields, the requirement to conform to provisions of a fire prevention and suppression plan has been in effect for at least 30 years. This requirement is part of the approval for all activities proposed for NFS lands, including APDs. Compliance with fire plan provisions has been very effective in preventing fires resulting from operations in the oil fields.

Due to concern about the potential hazards from wild fire, oil and gas production facilities themselves are given a large degree of protection from the effects of fire. All facilities are situated on a location or “pad” which is absent of vegetation and other flammable materials. A firebreak surrounds all structures. The firebreak is constructed by removing all brush, flammable vegetation, or combustible growth located within 30 feet of the structure. For an additional 70-foot distance, heavy vegetation is removed but vegetation less than 18 inches in height is allowed to remain to stabilize the soil and prevent erosion. Annual “hazard reduction” is done to remove vegetation that may present a hazard to the facilities. Forest Service fire prevention personnel inspect this work to insure it is done properly.

These mitigation measures have been effective in minimizing wild fire damage to the existing petroleum production facilities located on the LPNF. For example, at the current operations in the Sespe and Cuyama oil fields, the requirement to conform with provisions of a fire prevention and suppression plan has been in effect for at least 30 years. This requirement is part of the approval for all activities proposed for NFS lands, including APDs. Compliance with fire plan provisions has been very effective in preventing fires resulting from operations in the oil fields and has been effective in minimizing damage to these facilities from naturally occurring wild fires that have burned through the oil fields.

As mentioned previously, there has been no major damage to oil and gas facilities as the result of fire. Some minor damage to equipment has occurred but nothing that has resulted in a release of hazardous materials into the environment.

#### **4.5.8.1.2 Potential Effects of Fire**

Although standard lease terms provide a degree of protection against wildfire, there are numerous potential effects should a fire occur. Direct environmental consequences of wildfire could be the loss of life and structural improvements. Indirect environmental consequences could be the loss of soil, degradation of water quality, flood damage to downstream improvements and the loss of water storage capacity of reservoirs. Long-term losses potentially include the loss of timber where the timber burned by hot wildfire could take from 50-100 years to return to its original state.

Loss of timber due to a wildfire would be irretrievable because recreationists, botanists, or others could not enjoy this important resource during the time it takes for the timber stand to be replaced.

Another example of a long-term loss would be soil loss resulting from wildfire. Soil replacement takes several decades. Short-term soil losses through accelerated erosion rates resulting from a wildfire take 7-10 years to recover to pre-burn erosion rates.

Finally, irreversible and irretrievable losses would occur if major landslides resulted from a wildfire.

#### **4.5.8.2 *Geologic Hazards***

Geologic hazards consist of lands prone to landslides, erodable soils, and seismic hazards. Slope sensitivity and erosion potential are factors in the cumulative watershed analysis conducted and reported under the watershed section. A large magnitude seismic event could cause significant impacts to oil and gas developments if they are not designed to withstand the seismic loading.

Under authority of SLTs, BLM & FS will require all structural designs be done by a professional engineer (PE) licensed in the state of California specializing in seismic design and experienced in oil and gas development. California requires civil PE candidates to pass two state-specific exams in addition to the national NCEES civil exam. These exams are called Seismic Principles and Engineering Surveying. The Seismic Principles exam tests the candidate's grasp of the fundamental principles, tasks, and knowledge involved in the California practice of seismic design, analysis, and evaluation of civil engineering projects. Per the California State Board: the Seismic Principles exam utilizes the 2001 California Building Code (CBC).

The Gas and Liquid Fuel Committee of the American Society of Civil Engineers (ASCE) has studied the issue of planning, design, and construction of gas and liquid fuel transportation and storage systems to mitigate the effects of earthquakes; and to develop procedures with which sound design and fitness-for-service assessment can be implemented to achieve acceptable levels of performance. The committee references include:

- *Guideline for the Seismic Design of Oil and Gas Pipeline Systems, Douglas Nyman, Ed. 1984*
- *Seismic Design Guide for Natural Gas Distributors, Monograph No. 9, Peter McDonough, Ed. 1995*
- *Guide to Post-Earthquake Investigation of Lifelines, Monograph No. 11, Anshel Schiff, Ed. 1997*
- *See other TCLEE publications on the ASCE website.*

#### **4.5.8.3 Spill Hazards**

The potential sources of spills of hazardous materials are many. The hazardous substances that are commonly connected with oil and gas operations are listed in section 3.3.8.4 of this report. A major source is the transportation of these materials on Federal, State, county or private roads that are on or located near LPNF. Another major source is the use of these materials in the various phases of oil and gas exploration, development, production and abandonment. The transportation of oil by truck or pipeline is other sources of possible oil discharges. The expected routes of oil tank trucks and the waterways at risk are shown in Table 3-37.

The risk of spill is directly related to the projected amount of oil and gas produced. Consequently, the projected spill risk is highest in Alternative 2 and lowest in Alternative 1. The risk of spill for Alternatives 4, 4a, and 5a is roughly the same and slightly less than the risk for Alternatives 3 and 5, which are the same. The risk of a spill for the New Preferred Alternative is slightly less than for Alternative 5a.

A discharge or spill of hazardous substances could occur during periods of low stream flow volumes or no stream flow, which are common for the majority of streams on the Forest. If a spill occurred under either of these conditions, the material would be concentrated (not diluted by water), and would remain within the area of the spill and/or drainage basin longer than during periods of high stream flow. If the stream is flowing, the spill could be spread out over a longer segment of the stream and could enter a body of water fed by the stream. Groundwater contamination could occur if a surface spill occurred and the contaminated water percolated into the groundwater basin.

The Sespe and San Cayetano are the only two HOGPAs with a sensitive water “receptors” downstream. These are Sespe Creek, Santa Paula Creek, and the Santa Clara River, potential habitat for the endangered steelhead trout. In the past, spill control and containment mitigation measures that have been employed at the existing petroleum production facilities in the Sespe have been largely successful in preventing impacts to Sespe Creek. For example, to help contain potential oil spills in the Sespe oil fields, five oil catch basins or “weeper dams” have been constructed in various intermittent stream courses below the areas of operation. These dams are constructed so that, if a spill occurs when the stream is flowing, the dam will trap the oil and allow water to pass through and continue downstream. This can be done because the oil separates from the water and floats on top of the water. These weeper dams are accessible by road so that vacuum trucks can skim the oil contained behind the dams and crews can access the area to complete the cleanup job. Over the years, these dams have been used to facilitate the cleanup of several minor spills and have prevented unacceptable impacts to environmental receptors in the area.

Well blowouts are catastrophic spills, which can cause extensive damage to vegetation and wildlife, polluting surface and ground water and degrading scenic and recreational resource values. Direct injuries to people can occur as well as damage to structures. The proper placement of casing and implementation of well blowout prevention measures has reduced the occurrence of well blowouts from 0.85% in the 1940s to .03% in the 1980s, only 3 in 10,000 wells. To put this in perspective in relation to this analysis, the New Preferred Alternative projects the potential drilling of 25 wells. Applying the figure of .03% of all wells expected to blowout translates to a “blowout expectation” of less than one in a thousand. To state this in another way, over 3,000 wells would need to be drilled before a blowout would be expected. The adherence to design and construction standards for well blowout prevention has successfully prevented any well blow out from occurring at existing production facilities. In the over 100 years of oil and gas operations that has taken place in these areas, which include the drilling of hundreds of wells, there has not been a single well blowout.

As previously discussed in Chapter 2, many Federal and State laws and regulations are designed to protect surface water by the prevention and control of hazardous spills.

There are many factors that determine how significant a spill could be, if one were to occur. Some of these factors are:

- stream flow
- type and amount of material spilled
- accessibility to spill site, and to stream and water bodies affected by the spill
- availability of manpower and equipment
- time between the spill's occurrence and initial response and cleanup effort
- effectiveness of permanent stream pollution control structures such as weeper dams

The potential effects of spills on the biological environment are discussed in Sections 4.4.2.1, 4.4.2.2, 4.4.4.1, and 4.4.4.2.1.

All oil, hazardous substances, and toxic wastes produced either by oil and/or gas wells or used to drill such wells are required to be disposed of at a hazardous substance disposal site-Class I disposal site. The actual drill site and its operation are under the control and jurisdiction of many agencies. Some of these are the State of California Department of Health, State of California Regional Water Quality Control Board, State Solid Waste Management Board, and various county departments of health, planning, etc.

A protection and response assessment is required as part of any project plan where hazardous materials are used. The project could be under the direction of the Forest Service or its permittees or contractors. The first objective for any operation is to prevent the spilling of hazardous materials into an area that could harm the environment. In the event that a spill does occur, the objectives of cleanup activities are to contain the spill within as small an area as



possible, and to protect the safety, health, and value of persons, wildlife, and property downstream.

It is expected that operators would be able and willing to oversee spill prevention and response for all new operations, which may result from leasing. For existing lease operations on LPNF in the Sespe and Cuyama areas, protection and response is currently assumed by the operators. This is done in accordance with individual SPCC plans, which have been developed in accordance with the requirements of 40 CFR, Section 112, and explained in Section 2.3.4.2.1 of this document. These “spill plans” vary in content but they all include the following:

- Measures to prevent leaks or spills of hazardous materials
- Measures to contain a spill if one occurs
- Lists of company facilities and inspection schedules for equipment
- Reporting requirements
- List of government agencies required to be notified of a spill
- List of responsibilities of company personnel
- List of cleanup contractors

Excerpts from the contents of the SPCC plans for two operators are shown below. These companies have oil and gas operations on both private and federal (NFS) lands in and adjacent to Los Padres National Forest. This information is presented here to give the reader some familiarity with the content and operation of SPCC plans in general, and to oil field operations in particular. The material is presented in outline format with selected statements actually quoted from the plans to emphasize certain points.

## **General Incident Action Plan**

### **Company 1**

#### **Introduction**

“Without question, a release of crude oil from a pipeline, a vessel, or a tank can be challenging and costly in terms of stopping the leak, recovering the oil, cleaning the soiled area, performing requisite repairs, dealing with the media, and implementing preventative programs to forestall a similar occurrence. Therefore, the best insurance for preventing a release of crude oil is to maintain equipment in good working order and to replace depreciated or defective equipment when warranted.”

“The general incident action plan will serve as a SPCC plan (as required by 40 CFR 112) and provide information should the need arise to respond to a discharge of crude oil, for example, from our facilities. The Plan provides a universal approach to addressing the incident. The intent of the Plan is not to supplant good oil field practice or common sense; but rather, it should be utilized as a tool to mitigate the extent of damage in the event of an incident including... a chemical spill, an oil spill, or a natural gas release.

“Prompt action is mandatory”. “The contents of this plan must be familiar to all personnel.”

- List of notification procedures
- Definition of a reportable incident
- Duties and responsibilities of “incident response team” and support operations

#### Telephone Numbers

- Company personnel
- Contractors and service companies
- Government agencies

#### Procedural Information and Containment Schematics

- Prevention and precaution
  - List of containment equipment available – pipes, containment booms, excelsior
- Incident containment and prevention systems

“The tank batteries are sufficiently bermed. Pumpers inspect the tanks and associated equipment daily. Some facilities are manned 24 hours per day and a contracted security company makes inspections during off-company hours. Proactive measures reduce the probability of an incident. Some of the measures are the inspections of pipelines, pressure vessels, and tanks; the utility of corrosion inhibitors; the periodic inspection of pipelines, pressure vessels, and relief valves; and the utility of abandoned tanks as “blowdown vessels” in pressure-relief systems.”

“The chief objective with any incident is to arrest the leak.”

- Immediate action – Discovery, containment and notification
  - “Generally, an incident will be discovered by or reported to a company employee who should take immediate action to stop and contain the incident. The employee should then notify the appropriate superintendent. The notification should include... details about the incident, what corrective actions have been taken, and whether the incident requires additional attention. The superintendent will then follow up with supervising the activities related to the incident and make all requisite notifications. In addition, the superintendent must make certain that immediate and feasible actions have been executed to protect the public’s health and the environment.”
- Containment, clean up and restoration. List of seven considerations:
  - Safety of company personnel and the public
  - Quality of the containment
  - Protection of the environment
  - Adequacy of resources to contain the incident and protect the environment
  - Recovery of lost product (e.g. crude oil)
  - Cleanup of equipment and disposal of soiled materials
  - Restoration of the environment

- Diagrams of and instructions for use of various containment structures

### Incident Report Form

#### Substantial Harm Criteria Certifications - listed for all company facilities

These are certifications, which are prepared for EPA that facilities, chiefly oil tanks, have/do not have the potential to cause substantial harm to the environment.

#### Lease-Facility Overviews and Schematics

Descriptions, maps and diagrams are provided for all facility locations. The diagrams show a schematic of the location, siting of various equipment, capacities of tanks, and direction of flow away from location.

## **General Incident Action Plan Company 2**

### Description of equipment and containment prevention measures

- Well heads – All well heads are inspected daily
- Production lines and shipping lines – The possibility of rupture or oil seepage from flow lines and gathering lines exists. Most piping follows the road on support racks. All lines are monitored a number of times daily and a leak would be discovered within a short time. Corrosion inhibitors are used. Earthmoving equipment is available in the area so that any leaks would be promptly contained. Oil and water emulsions would be recovered by vacuum truck and returned promptly to the tank battery.
- Free water knockout / heater treater – Malfunctions in heater treater could cause oil emulsions to bypass the tank facility. Equipment is kept in good order. The heater treater and free water knockouts are surrounded by secondary containment berms. The (facilities) are monitored throughout the day.
- Tanks -- “Block walls or earthen berms sufficient in height to contain the volume of the largest single tank are constructed around each tank farm to prevent oil from discharging into creeks.” All tanks are bolted steel tanks with compacted gravel pads for drainage and quick leak detection. Anodes are mounted in the water section to prevent internal corrosion. “We have not nor do we expect any tank ruptures.” In the event of a rupture or a collapse, the oil would be contained within the bermed and walled area surrounding the tank battery. Drainage is contained within the bermed area by a manual valve to prevent a spill or excess leakage from entering the natural drainage course. The valve shall remain closed at all times except when rainwater is being drained. Drainage will not take place when oil is present on the location. The probability of a major spill has been

lessened by the installation of a lease automatic custody and transfer unit – LACT. The automatic controls reduce the amount of oil in the shipping tank at any one time.

### Oil Field Lease Equipment Inspection Requirements

“Inspections are required to assure process equipment is functioning properly to prevent the accidental discharge of oil as a result of equipment failure.” In addition to routine inspections, local management conducts a general safety and environmental inspection annually to insure compliance with the SPCC plan and assess the overall environmental operation of the lease.

The frequency of the routine inspections is listed on an attached equipment schedule. An example of the items inspected and the frequency follows:

- Inspected daily –
  - Well pads and flowlines:
    - Visually inspect for oil contamination
    - Inspect all flowlines for leaks or signs of corrosion
    - Inspect stuffing boxes on pumping units for leaks
    - Inspect catchment basins
  - Test locations
    - Visually inspect for signs of oil contamination or standing water
    - Inspect all piping and equipment connections for leaks
    - Verify operation of all operational controls
  - Tank batteries
    - Inspect containment barriers for contamination
    - Inspect tank hatches and vent valves for proper operation
    - Check gasket seals on bolted tanks for leaks
- Inspected weekly –
  - Well pads and flowlines
    - Inspect all wellhead and flowline connections
    - Inspect chemical pumps, tanks and connections for leaks
    - Inspect for polished rod alignment and wear
- Inspected monthly –
  - Well pads and flowlines
    - Verify proper operation of beam pumping unit shutdown controls

- Inspected quarterly –
  - Well pads and flowlines
    - Verify proper operation of all valves
    - Inspect first response equipment trailer
  - Test locations
    - Verify proper operation of all shutdown controls and alarm switches
  - Tank batteries
    - Verify proper operation of all shutdown controls and alarm switches
  
- Inspected annually –
  - Test locations
    - Verify proper operation of all process related equipment
  - Tank batteries
    - Verify proper operation of all process related valves

When any spill occurs, in conjunction with the company SPCC plan, the LPNF Hazardous Substance Contingency Plan is followed. This plan provides for effective response and coordination of cleanup efforts. The contingency plan prescribes the specific actions to be taken in case of an accidental discharge of hazardous materials on National Forest lands, or threatening National Forest lands. The Forest's Pollution Response Team members are responsible for preventing spills and initiating, directing, or coordinating on-the-scene cleanup operations. In the case of spills occurring in the oil fields, Forest personnel monitor the operator's response actions and conduct inspections to insure that cleanup is thoroughly done and that possible impacts to the environment is mitigated to the extent possible.

The LPNF Contingency Plan contains such items as: List of Spill Clean-up Contractors; R-5 Report of Accidental Discharge; Regional Forester Action Plan for Accidental Discharge of Oil and Hazardous Substances; List of Hazardous Substance Disposal Sites; and EPA Region 9 Oil and Hazardous Substances Pollution Contingency Plan. The Plan has a provision that the Forest Service shall report discharges on private lands threatening National Forest System lands, facilities, and/or resources.

#### **4.5.9 Recreation**

This section describes the impacts to the recreational opportunities that could occur and how Forest Plan compliance would be affected from oil and gas exploration and development under the alternative leasing scenarios considered.

### 4.5.9.1 Typical Recreational Impacts

Typical direct and indirect oil and gas development impacts to dispersed and developed recreation opportunities for various types of recreational areas and Recreation Opportunity Spectrum (ROS) class areas found on LPNF are described in Table 4-54. This table describes the types of impacts that could potentially occur if not mitigated.

The following sections describe the impacts that could occur under each alternative leasing scenario given the mitigation that would be applied with the particular alternative.

### 4.5.9.2 Alternative 1 - No Action / No New Leasing

No additional LPNF lands would be leased for oil and gas development under Alternative 1. However, any lands within existing lease areas could be further developed for oil and gas activities consistent with existing lease rights. This could include construction of new roads, pads, pipelines, and other oil and gas exploration and development activities. Impacts from past and present projects would continue and possible expansion of activities and facilities within existing lease areas could cause additional impacts.

TABLE 4-54: TYPICAL IMPACTS TO RECREATION OPPORTUNITIES

Potential Impact Area	Potentially Significant Direct Impacts	Potentially Significant Indirect Impacts
Designated Wilderness Areas	<p><i>No Potentially Significant Direct Impacts:</i></p> <p>Designated Wilderness areas are withdrawn from mineral entry and not available for oil and gas lease consideration. Consequently there would be no direct impacts within designated Wilderness areas.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Within LPNF there are 814,560 acres of designated Wilderness areas. This represents over 45% of LPNF. Many of the HOGPAs are adjacent to, or in close proximity of, these designated Wilderness areas. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and sense of remoteness and naturalness. This can result through sight, sound, vibrations, and odors that are detectable from within designated Wilderness areas. Oil and gas activities and facilities, located adjacent to or within close proximity of designated Wilderness, could have significant indirect impacts on recreational experiences if the activities or facilities are detectable from within the Wilderness area.</p>
Inventoried Roadless Areas (IRA's)	<p><i>Potentially Significant Direct Impacts:</i></p> <p>Recreation opportunities vary in inventoried roadless areas (IRA's) on LPNF depending on the adopted ROS class within each IRA. Portions of IRA's are in <i>Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, and Rural</i> ROS classes. Where surface occupancy is allowed, potential direct impact of oil and gas activities and facilities within IRA's depend on the lease stipulations and the particular ROS class(es) within each IRA. Impacts by ROS classes are described below.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Recreation opportunities vary in IRA's on LPNF depending on the adopted ROS class within each roadless area. Portions of IRA's are in <i>Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, and Rural</i> ROS classes. Where surface occupancy is allowed, potential indirect impact of oil and gas activities and facilities within IRA's depend on the lease stipulations and the particular ROS class(es) within each IRA. Impacts by ROS classes are described below.</p>
Wild and Scenic Rivers	<p><i>Potentially Significant Direct Impacts:</i></p> <p>Oil and gas activities and facilities are not consistent with the environmental setting expectations of recreationists within Wild and</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Oil and gas development outside of designated Wild and Scenic River areas can indirectly disrupt solitude and sense of remoteness and naturalness within. This can</p>

Potential Impact Area	Potentially Significant Direct Impacts	Potentially Significant Indirect Impacts
	Scenic River areas and could cause significant direct impacts to the recreational experience if located within the designated Wild and Scenic Rivers area.	result through sight, sound, vibrations, and odors that are detectable from within designated Wild and Scenic River areas. Oil and gas activities and facilities could significantly impact the recreational experience if located within close proximity of designated Wild and Scenic River areas and are perceptible within the area.
Primitive (P) ROS Areas	<p><i>No Potentially Significant Direct Impacts:</i></p> <p>All <i>Primitive</i> ROS class lands on LPNF are in designated Wilderness areas. Designated Wilderness areas are withdrawn from mineral entry and not available for oil and gas lease consideration. Consequently there would be no direct impacts.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>All <i>Primitive</i> ROS class areas on LPNF are in designated Wilderness areas. Oil and gas development outside of <i>Primitive</i> ROS class areas can indirectly disrupt solitude and sense of remoteness and naturalness within. This can result through sight, sound, vibrations and odors that are detectable from within designated <i>Primitive</i> ROS class areas. Oil and gas activities and facilities could significantly impact the recreational experience if located within close proximity of <i>Primitive</i> ROS class areas and are detectable within the area.</p>
Semi-Primitive Non-Motorized (SPNM) ROS Areas	<p><i>Potentially Significant Direct Impacts:</i></p> <p>Oil and gas activities and facilities are not consistent with the norm condition setting indicators for the <i>Semi-Primitive Non-Motorized</i> ROS class. Construction of even primitive roads would change the ROS setting from <i>Semi-Primitive Non-Motorized</i> to <i>Semi-Primitive Motorized</i>. The access improvements and presence of facilities would alter the sense of remoteness and naturalness.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Oil and gas development outside of <i>Semi-Primitive Non-Motorized</i> ROS class areas can indirectly disrupt the opportunity for a primitive recreational experience within. This can result through sight, sound, vibrations and odors that are detectable from within designated <i>Semi-Primitive Non-Motorized</i> ROS class areas. Oil and gas activities and facilities could significantly impact the recreational experience if located within close proximity of <i>Semi-Primitive Non-Motorized</i> ROS class areas and are perceptible within the area.</p>
Semi-Primitive Motorized (SPM) ROS Areas	<p><i>Potentially Significant Direct Impacts:</i></p> <p>The norm condition indicators for the <i>Semi-Primitive Motorized</i> ROS class, can, under limited conditions, be consistent with oil and gas activities and facilities within the densities indicated in Section 2.5.3.1.3.2. However, access and facilities would need to be heavily constrained to provide for only primitive access, rustic facilities, and be located to be outside the sight and sound distances of trails and utilized dispersed recreation areas. These requirements may make the oil and gas operation uneconomic. Potentially significant recreational impacts could occur if these requirements are not met.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Oil and gas activities and facilities may have indirect recreational impacts to <i>Semi-Primitive Motorized</i> ROS class areas if they are within such close proximity that they adversely impact the norm condition indicators for the ROS class.</p>
Roaded Natural (RN) ROS Areas	<p><i>Potentially Significant Direct Impacts:</i></p> <p>Effectively planned, designed, and implemented oil and gas activities and facilities, within the densities limits, can be within the norm condition indicators for the <i>Roaded Natural</i> ROS class. Potentially significant recreational impacts could occur if these densities or ROS norm conditions are exceeded.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Oil and gas activities and facilities may have indirect recreational impacts to <i>Roaded Natural</i> ROS class areas if they are within such close proximity that they adversely impact the norm condition indicators for the ROS class.</p>
Rural (R) ROS Areas	<p><i>No Potentially Significant Direct Impacts:</i></p> <p>The norm condition indicators for the <i>Rural</i> ROS class are consistent with oil and gas activities and facilities within the densities limits. Potentially significant recreational impacts could occur if these densities or ROS</p>	<p><i>No Potentially Significant Indirect Impacts:</i></p> <p>Oil and gas activities outside of <i>Rural</i> ROS areas would not have significant indirect impacts on recreational opportunities within the <i>Rural</i> ROS area.</p>

Potential Impact Area	Potentially Significant Direct Impacts	Potentially Significant Indirect Impacts
	setting indicator norm conditions are exceeded.	
Developed Recreation Sites	<p><i>Potentially Significant Direct Impacts:</i></p> <p>Oil and gas activities and facilities are not consistent with developed recreation sites. If an oil and gas activity or facility were located within a developed recreation site such as a campground or day use area significant direct impacts would occur to the recreation experience.</p>	<p><i>Potentially Significant Indirect Impacts:</i></p> <p>Oil and gas activities and facilities are not consistent with developed recreation sites. Oil and gas activity or facility can adversely impact the recreational experience within close proximity of a developed site. This can result through sight, sound, vibrations, and odors that are detectable from developed recreation sites.</p>

The RFD projections for Alternative 1 are shown in Chapter 2. These projections are for new activities/facilities in addition to the existing facilities in the existing lease areas in the San Cayetano, Sespe, and South Cuyama areas. Currently there are approximately 280 wells on 90 well pads, 50 miles of roads and 50 miles of pipelines within the existing lease areas on LPNF in the Sespe oil fields, 22 wells and 8.8 miles of roads in the Cuyama oil field area and three wells in the San Cayetano area. (NOTE: The values for the Sespe oil fields include facilities on private lands. The numbers of facilities in the other fields are for NFS lands only.)

The Alternative 1 RFD projects all new wells in the San Cayetano and Sespe areas to be drilled from existing well pads. Consequently, there would be no additional surface disturbing activities in those areas. One additional well pad, four additional wells, one-half mile of road, and one-half mile of pipeline are projected for the South Cuyama area resulting in three acres disturbed before rehabilitation two acres after.

**4.5.9.2.1 Existing Leases in the San Cayetano Area**

The existing leases in the San Cayetano area are in an adopted *Roaded-Natural* ROS class. Existing development on the existing leases in the San Cayetano area consists of three wells on two existing pads.

**4.5.9.2.1.1 Direct and Indirect Impacts**

If San Cayetano were developed per the RFD scenario for Alternative 1, there would be a total of one new well drilled on an existing well pad. There would be no new ground disturbance. This would bring the total to four wells within 165 acres of existing leases which is well within the densities in section 2.5.3.1.3.2 in Chapter 2 for the *Roaded-Natural* ROS class. Consequently, there would be no additional significant direct or indirect impacts to recreation opportunities.



#### **4.5.9.2.2 Existing Leases in the Sespe Area**

The existing leases in the Sespe area are in *Rural* and *Primitive* ROS class areas. The *Primitive* ROS portion of the existing Sespe lease area is in the Sespe Wilderness and Sespe Condor Sanctuary. Surface occupancy for oil and gas activities is not allowed in designated Wilderness areas. Directional drilling from outside the area accesses the subsurface oil and gas resources under the Sespe Wilderness.

The rest of the Sespe existing lease area is in the Sespe oil field and is in a *Rural* ROS class. This area is approximately four square miles or a little over 2500 acres. Within this area, including private lands in the Sespe oil fields, there are approximately 280 wells on 90 well pads, 50 miles of roads and 50 miles of pipelines.

##### **4.5.9.2.2.1 Direct Impacts**

The average densities of existing oil and gas facilities per square mile are: 70 wells; 22.5 well pads; 12.5 miles of road and 12.5 miles of pipelines. These densities exceed the values in Section 2.5.3.1.3.2. for the *Rural* ROS class indicating an ROS class under-achievement of one level and therefore significant existing direct impacts to the recreational opportunities.

If the Sespe area were developed per the RFD scenario for Alternative 1, there would be a total of five new wells on existing well pads, no new roads, and no new pipelines. This is expected to continue the impacts to recreational opportunities.

##### **4.5.9.2.2.2 Indirect Impacts**

The eastern portion of the existing Sespe lease area is in the Sespe Wilderness and Sespe Condor Sanctuary and is in a *Primitive* ROS class. Under existing leases, surface occupancy for oil and gas activities is not allowed in designated Wilderness areas. However, the subsurface oil and gas resources under the Wilderness area are accessed by directional drilling adjacent to and just outside the Wilderness. The north and east side of the existing leases are directly adjacent to the Sespe Wilderness and Sespe Condor Sanctuary. This results in an area with an adopted *Rural* ROS class goal that is under-achieving ROS class standards directly adjacent to the *Primitive* ROS class within the Wilderness and Sespe Condor Sanctuary. Private lands with oil and gas development also are directly adjacent to the Sespe Wilderness and Sespe Condor Sanctuary.

Existing oil and gas activities in the Sespe lease area and adjoining private lands would normally cause significant indirect impacts to recreation opportunities in the adjoining Sespe Wilderness and Sespe Condor Sanctuary. However, since public access is not allowed in the Sespe Condor Sanctuary there are no recreation opportunities there to be impacted.

#### **4.5.9.2.3 Existing Leases in the South Cuyama Area**

Current oil and gas development on federal leases in the South Cuyama area consists of 22 wells and roughly 5 miles of road. These wells and roads are on two isolated parcels of Los Padres National Forest that are completely surrounded by private lands within the Cuyama oil field.

One parcel is approximately ½ square mile (320 acres) in size and the other is approximately 1/16 square mile (40 acres) for a total of 9/16 of a square mile or 360 acres.

Within the developed area the density of existing wells averages 39 per square mile and the density of roads averages 8.8 miles per square mile. Although the adopted ROS class for this areas in the Forest Plan is *Roaded Natural* these densities are consistent with an *Urban* ROS class, under-achieving ROS by two levels and indicating a potentially significant existing impact to recreational opportunities. However, the two developed parcels do not provide opportunities for public recreation since private lands within a developed oil field surround them. These highly developed parcels of NFS land are indistinguishable from the oil development on the surrounding private lands.

#### **4.5.9.2.3.1 Direct & Indirect Impacts**

The RFD scenario for Alternative 1 for South Cuyama projects four new wells, one new well pad, one-half mile of new road, and one-half mile of new pipeline. Surface disturbance would be three acres (initially) and two acres (after rehabilitation). If the pad, roads, & pipeline were within the parcels in the existing oil field they would contribute to densities that already exceed the ROS density standards in Section 2.5.3.1.3.2. However, the added development would be within an existing oil field and undistinguishable from outside the field. As a result there would be no additional impact to recreation opportunities. The remainder of the existing lease areas in the South Cuyama area lie along or near the Forest boundary in areas that can sustain one well pad, one-half mile of new road, and one-half mile of new pipeline without significant impacts to any developed or dispersed recreational opportunities.

#### **4.5.9.2.4 Cumulative Impacts**

Impacts from past and present projects and activities, when coupled with reasonably foreseeable projects and activities would significantly affect recreation opportunities under Alternative 1. Impacts from overuse and lack of proper maintenance of recreation sites as described in Chapter 3 have resulted in impacts that potentially may not be individually significant, but are cumulatively significant. Impacts from past and present oil and gas activities have affected recreation experiences in and around the existing lease areas. The South Cuyama area has an ROS class of *Roaded Natural and Semi Primitive-Motorized* with existing oil and gas facilities densities that underachieve the ROS class by two levels. Additional development on existing leases in the South Cuyama area, even though only reasonably foreseeable on one additional drill pad, would contribute to the cumulative effects, which are already significant. Even though the adopted ROS class for the developed federal parcels in the Cuyama Oil Fields is currently under-achieved, more wells in this area would not affect recreation opportunities because no recreation opportunities exist there.

#### **4.5.9.2.5 Irreversible/Irretrievable Impacts**

New oil and gas activities such as new roads, drill pads, pipelines, utility lines, oil wells, and tank farms would create an irretrievable loss of recreation opportunities. This loss would

continue until the landscape is rehabilitated. To the extent that the entire impacted area is not or cannot be rehabilitated, the impact is irreversible.

Past activities on LPNF, including oil and gas development in existing lease areas, have resulted in an irretrievable loss of recreation opportunity over an extended period of time. The ability to require current lessees to mitigate or rehabilitate these impacts is a function of existing lease terms, which cannot be changed without the consent of the lessee. Additional activities in existing lease areas could increase irretrievable impacts. The 3 acres of projected additional impact is expected to reduce to 2 acres after rehabilitation of initial construction. Consequently there would be an irretrievable impact of 3 acres until rehabilitation was completed. The 2 acre impact thereafter would be irretrievable until the lease was terminated and reclaimed..

#### **4.5.9.2.6 Short-term/Long-term Tradeoffs**

The short-term for this analysis is defined as the life of the projects resulting from the leasing scenario. The long-term looks at time from when the leases are terminated and areas are rehabilitated far into the future.

There is a short-term economic gain to the lessee. Once operations cease, lessees are required to remove all facilities and rehabilitate the entire area impacted. There should be no significant long-term tradeoff of recreational opportunity since all impacted lands that are disturbed are to be rehabilitated. However, if rehabilitation is not successful there could be a long-term trade off of recreation opportunity.

#### **4.5.9.2.7 Mitigation Measures and Stipulations**

Under Alternative 1, the only stipulations and measures to mitigate recreation impacts are BLM Standard Lease Terms (moving an oil and gas activity 200 meters or delaying it up to 60 days) and existing lease terms. Under Alternative 1, no special or additional mitigation measures or stipulations are applied to existing leases. Additional mitigation measures cannot be directed to the lessee, but rather, only negotiated because the lease terms are already established.

BLM Standard Lease Terms could be effective mitigation in the following situations:

- *Moving oil and gas developments a maximum of 200 meters could be effective in eliminating direct on-site disruption of a developed recreation site or a recreation trail, although the indirect sights, smells or sounds of oil and gas activities still could adversely affect recreation experiences at or near recreation sites.*
- *Delaying oil and gas activities up to 60 days could be effective during the peak recreation season to eliminate on-site disruption of a developed recreation site or a recreation trail.*

#### **4.5.9.2.8 Forest Plan Consistency Discussion**

The past consequences of existing leases is not consistent with the Forest Plan since existing lease operations do not meet the adopted ROS class goals. The density of the existing development within the two existing lease parcels within the Cuyama oil field and within the

Sespe oil field do not meet the density requirements of the adopted ROS class of *Roaded Natural* and *Rural* respectively. The additional RFD development projected for Alternative 1 would neither mitigate nor add significantly to this situation.

#### **4.5.9.3 Alternative 2 - Emphasize Oil And Gas Development**

Under the Alternative 2 leasing scenario, all LPNF lands that can be considered for lease would be offered for lease for oil and gas development, all lands except for designated Wilderness areas, the Big Sur Coastal Zone, and the Santa Ynez watershed. The only constraints on oil and gas leases would be BLM Standard Lease Terms. No additional Forest Service stipulations would be attached to leases under this alternative.

The RFD projections for Alternative 2 are shown in Table 2-3 in Chapter 2. While oil and gas activities are possible anywhere in the lease area they are only reasonably foreseeable in the HOGPAs.

Table 4-55 shows the maximum density of facilities that could be sustained without significant direct impacts according to the facilities densities by ROS class listed in section 2.5.3.1.3.2. Table 4-55 assumes even distribution of oil and gas facilities and is for analysis purposes only to be compared to the number of facilities estimated in the RFD.

Following are the projected consequences for the Alternative 2 leasing scenario for each HOGPA and the non-HOGPA area.

Table 4-56 summarizes the Inventoried Roadless Areas available and unavailable for surface occupancy by ROS class by HOGPAs and the non-HOGPA area for Alternative 2.

##### **4.5.9.3.1 Piedra Blanca HOGPA – 2,815 Acres**

The Piedra Blanca HOGPA consists of an area of 4.4 square miles located between the Sespe Wilderness and the Dick Smith Wilderness. 2.5 square miles (1,599 acres) or 57% of the HOGPA is in *Semi-Primitive Non-Motorized* ROS class. The remaining 1.9 square miles (1216 acres or 43% of the HOGPA) is in *Roaded Natural* ROS class. If the Piedra Blanca HOGPA were developed per the RFD Alternative 2 scenario there would be a total of 8 new wells, 1 new well-pad, 5.0 miles of new roads, and 5.0 miles of new pipelines. Surface disturbance would be 22.0 acres (initially) and 12.0 acres (after rehabilitation).

##### **4.5.9.3.1.1 Direct Impacts**

If any substantial oil and gas ground-disturbing activities such as road building or facilities construction were located within the *Semi-Primitive Non-Motorized* portion of the HOGPA there would be significant impacts to the recreation setting changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class depending on the specific context and intensity. New roads, pipelines, and/or facilities in a *Semi-Primitive Non-Motorized* ROS class area would be inconsistent with the following setting indicators: size, access, remoteness,

solitude, social encounters, on-site development, and naturalness. There would likely be significant direct recreation impacts.

Access to this HOGPA would likely be from Highway 33, possibly creating an impact directly on the recreation activity of viewing scenery from Jacinto Reyes Scenic Byway. The remoteness would be affected more than other attributes of ROS. The visibility of human developments affects the quality of the remoteness adjacent to designated Wilderness thus affecting the recreation experience.

Portions of IRA 5002, Sespe Frazier, which were not included in Sespe Wilderness, are within the Piedra Blanca HOGPA. A part of the west end of the HOGPA, next to State Highway 33, is in IRA 5002 and is in the *Roaded Natural* ROS class. Another part of IRA 5002 that's in *Semi Primitive Non Motorized* ROS class is at the east end of the HOGPA adjacent to the Sespe Wilderness. Road development in either of these IRAs would significantly impact the naturalness of the areas and increase social encounters.

If the RFD projected development occurred entirely within the 1.9 square miles of *Roaded Natural* ROS class portion of the HOGPA, Table 4-56 indicates there is sufficient area to potentially sustain the development without significant impacts. However, the miles of roads and pipelines projected (5 miles each) would be close to the density limit (5.3 miles of each) for the size of the *Roaded Natural* ROS class area in the HOGPA. Most likely the roads and pipelines would not be uniformly distributed across the HOGPA. Consequently, there would likely be significant direct recreation impacts especially if development occurred in the Roadless Areas.

#### **4.5.9.3.1.2 Indirect Impacts**

If oil and gas activities or facilities occurred in the Piedra Blanca HOGPA and were noticeable from the Sespe, Matilija, or Dick Smith Wilderness areas, then the Wilderness areas would be impacted. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and sense of remoteness within designated Wilderness areas. This can result through site, sound, vibrations, and odors that are apparent from within designated Wilderness areas.

Reyes Peak and Pine Mountain developed campgrounds are within approximately one mile of the Piedra Blanca HOGPA. Oil and gas activities and facilities are not consistent with developed recreation sites. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a developed site. This can result through site, sound, vibrations, and odors that are detectable from the developed recreation sites. The potential for the impact to be significant increases as the distance from the sites decreases. The sights, sounds, vibrations, noise, and vehicles associated with oil and gas development could have a significant impact on the experience of recreationists at these developed recreation sites.

TABLE 4-55: MAXIMUM OIL &amp; GAS FACILITIES PER HOGPA

	ROS CLASS *				Total
	SPNM	SPM	RN	R	
<b>Piedra Blanca</b> (square miles)	2.5	0.0	1.9	0.0	4.4
<i>Oil Wells</i>			30.4		30.4
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>			9.5		9.5
<i>Miles of Roads</i>			5.3		5.3
<i>Miles of Pipelines</i>			5.3		5.3
<b>San Cayetano</b> (square miles)	1.6	16.0	3.5	0.0	21.0
<i>Oil Wells</i>		127.8	55.5		183.4
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>		47.9	17.4		65.3
<i>Miles of Roads</i>		22.4	9.7		32.1
<i>Miles of Pipelines</i>		22.4	9.7		32.1
<b>Sespe</b> (square miles)	7.9	0.0	0.0	12.3	20.1
<i>Oil Wells</i>				490.7	490.7
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>				159.5	159.5
<i>Miles of Roads</i>				85.9	85.9
<i>Miles of Pipelines</i>				85.9	85.9
<b>Rincon Creek</b> (square miles)	2.3	5.2	6.6	0.0	14.1
<i>Oil Wells</i>		41.9	105.6		147.5
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>		15.7	33.0		48.7
<i>Miles of Roads</i>		7.3	18.5		25.8
<i>Miles of Pipelines</i>		7.3	18.5		25.8
<b>South Cuyama</b> (square miles)	1.8	98.2	25.4	0.0	125.4
<i>Oil Wells</i>		785.7	406.0		1191.7
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>		294.6	126.9		421.5
<i>Miles of Roads</i>		137.5	71.0		208.5
<i>Miles of Pipelines</i>		137.5	71.0		208.5
<b>La Brea Canyon</b> (square miles)	0.0	2.1	12.4	0.0	14.5
<i>Oil Wells</i>		16.6	198.7		215.3
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>		6.2	62.1		68.3
<i>Miles of Roads</i>		2.9	34.8		37.7
<i>Miles of Pipelines</i>		2.9	34.8		37.7
<b>Figueroa Mountain</b> (square miles)	3.5	2.1	8.0	0.0	13.7
<i>Oil Wells</i>		17.0	128.0		144.9
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>		6.4	40.0		46.4
<i>Miles of Roads</i>		3.0	22.4		25.4
<i>Miles of Pipelines</i>		3.0	22.4		25.4
<b>Lopez Canyon</b> (square miles)	2.1	0.0	1.4	0.0	3.5
<i>Oil Wells</i>			22.7		22.7
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>			7.1		7.1
<i>Miles of Roads</i>			4.0		4.0
<i>Miles of Pipelines</i>			4.0		4.0
<b>Monroe Swell</b> (square miles)	0.0	0.0	0.9	0.0	0.9
<i>Oil Wells</i>			15.0		15.0
<i>Well Pads, Treatment Facilities, and/or Tank Farms</i>			4.7		4.7
<i>Miles of Roads</i>			2.6		2.6
<i>Miles of Pipelines</i>			2.6		2.6

There are no Urban ROS class areas on LPNF and all Primitive ROS class areas are in designated Wilderness areas.

Reyes Peak and Pine Mountain developed recreation sites could be affected by road access to oil and gas facilities. Although indirect impacts to the remoteness and naturalness also occur, the increased traffic would have the greatest impact on the quality of social encounters.

TABLE 4-56: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 2.

HOGPA / Non-HOGPA	Inventoried Roadless Areas		Not Available NSO	Occupancy Available					Total Acres	% of HOGPA
	ID #	Name		ROS Class				Total Available		
				SPNM	SPM	RN	R			
Piedra Blanca	5002	Sespe Frazier		428		479	907	1,814	907	64.4%
		Not in an IRA		1,169		739		1,908	1,908	67.8%
		Total	0	1,597		1,218		2,815	2,815	100.0%
San Cayetano	5132	Nordoff			1,309	840		2,149	2,149	16.0%
	5002	Sespe Frazier		997	7,889	756		9,642	9,642	71.7%
		Subtotal Roadless		997	9,198	1,596		11,791	11,791	87.7%
		Not in an IRA			1,028	625		1,653	1,653	12.3%
		Total	0	997	10,226	2,221		13,444	13,444	100.0%
Sespe	5002	Sespe Frazier		4,395			1,395	5,790	5,790	44.9%
		Not in an IRA		634			6,458	7,092	7,092	55.1%
		Total	0	5,029			7,853	12,882	12,882	100.0%
Rincon Creek	5130	White Ledge		480	667	606		1,753	1,753	19.4%
		Not in an IRA		996	2,685	3,618		7,299	7,299	80.6%
		Total	0	1,476	3,352	4,224		9,052	9,052	100.0%
South Cuyama	5134	Sawmill-Badlands			12,288	6,905		19,193	19,193	23.9%
	5124	Madulce-Buckhorn			149	369		518	518	0.6%
	5120	Fox Mountain		1,140	32,704	3,692		37,536	37,536	46.8%
	5135	Cuyama			15,829	1,409		17,238	17,238	21.5%
	5118	Spoor Canyon		19		234		253	253	0.3%
		Subtotal Roadless		1,159	60,970	12,609		74,738	74,738	93.1%
		Not in an IRA		3	1,889	3,628		5,520	5,520	6.9%
		Total	0	1,162	62,859	16,237		80,258	80,258	100.0%
La Brea Canyon	5116	Tapusquet Peak				5,816		5,816	5,816	62.7%
	5117	La Brea			340	610		950	950	10.2%
	5115	Horseshoe Springs			214	506		720	720	7.8%
		Subtotal Roadless			554	6,932		7,486	7,486	80.7%
		Not in an IRA			770	1,017		1,787	1,787	19.3%
		Total	0		1,324	7,949		9,273	9,273	100.0%
Figueroa Mtn.	5279	De La Guerra			144	273		417	417	4.8%
		Not in an IRA		2,268	1,212	4,848		8,328	8,328	95.2%
		Total	0	2,268	1,356	5,121		8,745	8,745	100.0%
Lopez Canyon		Not in an IRA		1,349		908		2,257	2,257	100.0%
Monroe Swell		Not in an IRA				600		600	600	100.0%
Total HOGPA's		Roadless (IRA)		7,459	71,533	22,495	2,302	103,789	102,882	74.0%
		Not in an IRA		6,419	7,584	15,983	6,458	36,444	36,444	26.0%
		Total HOGPA's	0	13,878	79,117	38,478	8,760	140,233	139,326	100.0%

#### 4.5.9.3.2 San Cayetano HOGPA – 13,444 Acres

The San Cayetano HOGPA consists of an area of 21 square miles located along the LPNF southern border adjacent to the Sespe Wilderness. 1.6 square miles (997 acres or 7% of the HOGPA) is in *Semi-Primitive Non-Motorized* ROS class. 16 square miles (10,226 acres or 76%

of the HOGPA) is in *Semi-Primitive Motorized* ROS class. 3.5 square miles (2,221 acres or 17% of the HOGPA) are in *Roaded Natural* ROS class.

If the San Cayetano HOGPA were developed per the RFD scenario for Alternative 2, there would be a total of 39 new wells, 6 new well pads, 4.0 miles of new roads, and 4.0 miles of new pipelines. Surface disturbance would be 38.4 acres (initially) and 16.0 acres (after rehabilitation).

#### **4.5.9.3.2.1 Direct Impacts**

If any oil and gas ground-disturbing activities such as road building or facilities construction were located within the 1.6 square miles (997 acres) of *Semi-Primitive Non-Motorized* portion of the HOGPA there could be significant impacts to the recreation setting changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class depending on the specific context and intensity. New roads, pipelines, and/or facilities in a *Semi-Primitive Non-Motorized* ROS class area would be inconsistent with the following setting indicators: size, access, remoteness, solitude, social encounters, on-site development, and naturalness.

If the RFD projected development occurred entirely within the 16 square miles (10,226 acres) of *Semi-Primitive Motorized* ROS class portion of the San Cayetano HOGPA Table 4-56 indicates there is sufficient area to potentially sustain the development without significant impacts. However, for *Semi-Primitive Motorized* areas, the norm for access is motorized trails and primitive roads. Most new oil and gas developments would include new roads of a higher standard than “motorized trails & primitive roads” furthermore, new drill pads and other facilities would be inconsistent with the semi-primitive setting of the adopted ROS class.

If the RFD development estimated occurred entirely within the 3.5 square miles (2,221 acres) of *Roaded Natural* ROS class portion of the San Cayetano HOGPA Table 4-56 indicates that there is also sufficient area to potentially sustain the development without significant recreational impacts.

The East Fork of Santa Paula Creek running through the center of the San Cayetano HOGPA is a Wild and Scenic River Study Area. Oil and gas activities and facilities are not consistent with expected recreation experiences along Wild and Scenic Rivers. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a Wild and Scenic River. This can result through site, sound, vibrations, and odors that are detectable. This could cause a significant impact on the experience of recreationists within the Wild and Scenic River corridor.

The remoteness of the area would be impacted by any oil and gas development. The front country between Fillmore and Ojai serves as a transition between the urban areas and the Sespe Wilderness. Any development, especially near Santa Paula Creek, would have an affect on the recreation experience. Changes in the remoteness could also create a change in the social encounters and visitor impacts.



A part of IRA 5132, Nordhoff, is in the western end of the HOGPA. Even though the ROS classes in the IRA are *Roaded-Natural* and *Semi Primitive Motorized*, introducing roads would decrease the remoteness and naturalness and increase the social encounters in an Inventoried Roadless Area.

Portions of IRA 5002, Sespe Frazier are in the east end of the HOGPA with ROSs of *Semi-Primitive Non Motorized* and *Semi-Primitive Motorized*. Introducing roads here would decrease the remoteness and naturalness and increase the social encounters.

#### **4.5.9.3.2 Indirect Impacts**

Oil and gas activities/facilities could be apparent from the Sespe Wilderness area and/or East Fork of Santa Paula Creek. Oil and gas development outside of designated Wilderness or Wild and Scenic River Study areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated areas. This can result through sight, sound, vibrations, and odors that are detectable from within designated areas.

#### **4.5.9.3.3 Sespe HOGPA – 12,882 Acres**

The Sespe HOGPA consists of an area of 20.1 square miles located along the LPNF southern border adjacent to the Sespe Wilderness east of the San Cayetano HOGPA. 7.9 square miles (5,031 acres or 39% of the HOGPA) is in *Semi-Primitive Non-Motorized* ROS class. The remaining 12.2 square miles (7,851 acres or 61% of the HOGPA) is in *Rural* ROS class.

There are existing oil and gas leases in the Sespe area of LPNF in the Sespe oil fields. Currently there are approximately 280 wells on 90 well pads, 50 miles of roads and 50 miles of pipelines within the Sespe Oil Fields.

If the Sespe HOGPA were developed per the RFD scenario for Alternative 2, there would be a total of 49 new wells, 7 new well pads, 2.0 miles of new roads, and 1.0 mile of new pipeline. Surface disturbance would increase 35.2 acres (initially) and 12.1 acres (after rehabilitation). The resultant total for Sespe area would be 329 wells on 97 well pads, 52 miles of roads and 51 miles of pipelines.

#### **4.5.9.3.3.1 Direct Impacts**

If any substantial oil and gas ground-disturbing activities such as road building or facilities construction were located within the 7.9 square miles (5,031 acres) of *Semi-Primitive Non-Motorized* portion of the HOGPA, there could be significant impacts to the recreation opportunities changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class depending on the specific context, intensity and proximity to the existing oil and gas activities. New roads, pipelines, and/or facilities in a *Semi-Primitive Non-Motorized* ROS class area would be inconsistent with the following setting indicators: size, access, remoteness, solitude, social encounters, on-site development, and naturalness. This would most likely result in significant direct recreation impacts.

If the RFD development estimated occurred entirely within the 12.3 square miles (7,851 acres) of *Rural* ROS class portion of the Sespe HOGPA, 4-56 indicates there is sufficient area to potentially sustain the additional development without additional significant impacts.

Piru Creek, upstream from Lake Piru, is a Wild and Scenic River Study Area. A short reach of Piru Creek, north of Lake Piru, is within the Sespe HOGPA. Oil and gas activities and facilities are not consistent with expected recreation experiences along Wild and Scenic Rivers. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of Wild and Scenic Rivers. This can result through site, sound, vibrations, and odors that are detectable. This could result in a significant impact to the recreational experience within the Wild and Scenic River corridor.

Any development along Piru Creek could affect the developed trail system along the Creek. Social encounters, setting, and visitor impact factors would be the most affected ROS elements. There would be few direct consequences elsewhere in the HOGPA.

Portions of IRA 5002, Sespe Frazier, which were not included in Sespe Wilderness, are included in the Sespe HOGPA. There is a small area of IRA 5002 at the west end of the HOGPA that has a *Rural* ROS class and a larger portion of IRA 5002 at the eastern end of the HOGPA, by Lake Piru, that has a *Semi Primitive Non-Motorized* ROS class. Introducing roads in either area would affect naturalness, remoteness, and social encounters.

#### **4.5.9.3.3.2 Indirect Impacts**

Oil and gas ground-disturbing activities/facilities located in Sespe HOGPA could be apparent from the Sespe Wilderness area or the Piru Creek Wild and Scenic River Study area. Oil and gas development outside of these designated areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated areas. This can result through site, sound, vibrations, and odors that are detectable from within designated areas.

The Blue Point developed campground and Lake Piru recreational area are in *Rural* ROS class areas within the Sespe HOGPA. Oil and gas activities and facilities are not consistent with expected recreation experiences at developed recreation sites. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a developed site. This can result through sight, sound, vibrations, and odors that are detectable. This could have a significant impact on the experience of recreationists at these developed recreation sites.

#### **4.5.9.3.4 Rincon Creek HOGPA – 9,052 Acres**

The Rincon Creek HOGPA consists of an area of 14.1 square miles located along the LPNF southern border just northwest of Casitas Lake and southeast of the Matilija Wilderness. 2.3 square miles (1,476 acres or 16%) of the HOGPA is in *Semi-Primitive Non-Motorized* ROS class. 5.2 square miles (3,351 acres or 37% of the HOGPA) is in *Semi-Primitive Motorized* ROS

class. The remaining 6.6 square miles (4,225 acres or 47% of the HOGPA) is in *Roaded Natural* ROS class.

If Rincon Creek HOGPA were developed per the RFD scenario for Alternative 2, there would be a total of 3 new wells, 1 new well pad, 1.0 mile of new road(s), and no new pipelines. Surface disturbance would be 6.0 acres (initially) and 3.0 acres (after rehabilitation).

#### **4.5.9.3.4.1 Direct Impacts**

If any substantial oil and gas ground-disturbing activities such as road building or facilities construction were located within the 2.3 square miles (1,476 acres) of *Semi-Primitive Non-Motorized* portion of the HOGPA there would be significant impacts to the recreation setting changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class depending on the specific context, intensity and proximity to the existing oil and gas activities. New roads, pipelines, and/or facilities in a non-motorized ROS class area would be inconsistent with the following setting indicators: size, access, remoteness, solitude, social encounters, on-site development, and naturalness. This would most likely result in significant direct recreation impacts.

If the RFD development estimated occurred entirely within the 5.2 square miles (3,351 acres) of *Semi-Primitive Motorized* or 6.6 square miles (4,225 acres) of *Roaded Natural* ROS class portion of the Rincon Creek HOGPA, Table 4-56 indicates there may be sufficient area to sustain the development without significant impacts depending on the specific locations of activities and facilities. However, the RFD development projected may not be consistent with the following ROS indicators in the *Semi-Primitive Motorized* ROS class area: access, remoteness, social encounters, visitor management, facilities and on-site development, visitor impacts and naturalness.

This area has very little recreation activity at this time; there are few trails and no developed recreation sites. Public access into most of this area is restricted by the lack of rights-of-way across private lands. The area is very natural appearing and development in this area would most directly affect the naturalness indicators of ROS.

Portions of IRA 5130, White Ledge, are in the north-central part of the Rincon Creek HOGPA. This area contains ROS classes of *Roaded Natural*, *Semi-Primitive Motorized*, and *Semi-Primitive Non-Motorized*. Introducing roads in this area would affect naturalness, remoteness, and social encounters.

#### **4.5.9.3.4.2 Indirect Impacts**

The Lake Casitas Recreation Area is 2 miles south of Rincon Creek HOGPA. Oil and gas activities and facilities are not consistent with developed recreation sites. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a developed site. This can result through site, sound, vibrations, and odors that are detectable from the developed recreation sites. The potential for the impact to be significant is greater within ½ mile

of the sites. The sights, sounds, vibrations, noise, and vehicles associated with oil and gas development could have a significant impact on the experience of recreationists at these developed recreation sites

#### **4.5.9.3.5 South Cuyama HOGPA – 80,258 Acres**

The South Cuyama HOGPA consists of an area of 125.4 square miles located along the LPNF northern border just north of the Dick Smith and San Rafael Wildernesses. 1.8 square miles or 1,163 acres (1%) of the HOGPA is in *Semi-Primitive Non-Motorized* ROS class. 98.2 square miles or 62,856 acres (78%) of the HOGPA is in *Semi-Primitive Motorized* ROS class. The remaining 25.4 square miles or 16,239 acres (20%) of the HOGPA is in *Roaded Natural* ROS class.

If South Cuyama were developed per the RFD scenario for Alternative 2, there would be a total of 41 new wells, 6 new well pads, 3.0 miles of new roads, and 3.0 miles of new pipelines. Surface disturbance would be 35.3 acres (initially) and 14.0 acres (after rehabilitation).

##### **4.5.9.3.5.1 Direct Impacts**

If any substantial oil and gas ground-disturbing activities such as road building or facilities construction were located within the 1.8 square miles (1,163 acres) of *Semi-Primitive Non-Motorized* portion of the HOGPA there would be significant impacts to the recreation setting changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class depending on the specific context, intensity and proximity to the existing oil and gas activities. New roads, pipelines, and/or facilities in a non-motorized ROS class area would be inconsistent with the following setting indicators: size, access, remoteness, solitude, social encounters, on-site development, and naturalness. This would most likely result in significant direct recreation impacts.

If the RFD development estimated would occur entirely within the 98.2 square miles (62,856 acres) of *Semi-Primitive Motorized* or 25.4 square miles (16,239 acres) of *Roaded Natural* ROS class portion of the South Cuyama HOGPA Table 4-56 indicates there is ample area to sustain the development without significant impacts depending on the specific locations of activities and facilities. However, the RFD development projected may not be consistent with the following ROS indicators in the *Semi-Primitive Motorized* ROS class area: access, remoteness, social encounters, visitor management, facilities and on-site development, visitor impacts and naturalness.

Aliso Park, Salisbury Portrero, and Painted Rock developed campgrounds are within the HOGPA and could be directly impacted by oil and gas development.

Most all of the South Cuyama HOGPA is in an Inventoried Roadless Area (IRA). The east end of the HOGPA is in a part of IRA 5134, Sawmill-Badlands. This portion of IRA 5134 is in ROS classes *Roaded Natural* and *Semi-Primitive Motorized*. A small portion of IRA 5124, Madulce-Buckhorn, is in the South Cuyama HOGPA. This portion of IRA 5124 is in ROS classes *Roaded Natural* and *Semi-Primitive Motorized*. The central part of the HOGPA is within and adjacent to

IRA 5120, Fox Mountain. Most of IRA 5120 within the HOGPA is in ROS class *Semi-Primitive Motorized* with small portions of *Roaded Natural* along Buckhorn Road and Aliso Canyon and small portions of *Roaded Natural* and *Semi-Primitive Non-Motorized* along the southern HOGPA boundary. A large part of IRA 5135 Cuyama is within the central portion of South Cuyama HOGPA. IRA 5135, within the HOGPA, is mostly ROS class *Semi-Primitive Motorized* with smaller areas of *Roaded Natural* along Highway 133 and Buckhorn Road. The west end of the HOGPA is in IRA 5118, Spoor Canyon. IRA 5118 within the HOGPA has ROS classes of *Semi-Primitive Motorized* and *Roaded Natural*. The majority is in *Semi-Primitive Motorized* with *Roaded Natural* along Bates Canyon. Introducing roads in these Roadless Areas would affect naturalness, remoteness, and social encounters.

#### **4.5.9.3.5.2 Indirect Impacts**

If any oil and gas ground-disturbing activities such as road building or facilities construction were located in South Cuyama HOGPA, and it was within proximity of the Dick Smith and/or San Rafael Wilderness areas, it could be apparent from the Wilderness areas. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated Wilderness areas. This can result through site, sound, vibrations, and odors that are detectable from within designated Wilderness areas.

Oil and gas activities and facilities are not consistent with developed recreation sites. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a developed site. This can result through site, sound, vibrations, and odors that are detectable from the developed recreation sites. The potential for the impact to be significant is greater within ½ mile of the sites. The sights, sounds, vibrations, noise, and vehicles associated with oil and gas development could have a significant impact on the experience of recreationists at these developed recreation sites.

Bates Campground is within one mile of the South Cuyama HOGPA and could be indirectly impacted depending on location of oil and gas activities. Ballinger Canyon campground is within two miles of the HOGPA and would be impacted if development took place nearby. Social encounters and visitor management indicators would be most influenced in this area.

The sense of remoteness would be affected by oil and gas development. Off-road vehicle recreation could conflict with the roads and development of oil and gas in the eastern portion of the HOGPA.

#### **4.5.9.3.6 La Brea Canyon HOGPA – 9,273 Acres**

The La Brea Canyon HOGPA consists of an area of 14.5 square miles located just southwest of the western end of the San Rafael Wilderness. 2.1 square miles (1,324 acres or 14% of the HOGPA) is in *Semi-Primitive Motorized* ROS class. 12.4 square miles (7,949 acres or 86% of the HOGPA) are *Roaded Natural* ROS class.

If La Brea Canyon were developed per the RFD scenario for Alternative 2, there would be a total of 5 new wells, 1 new well pad, 1.0 mile of new road(s), and 1.0 mile of new pipeline(s). Surface disturbance would be 8.1 acres (initially) and 4.0 acres (after rehabilitation).

#### **4.5.9.3.6.1 Direct Impacts**

If the RFD development estimated occurred entirely within the 2.1 square miles (1,324 acres) acres of *Semi-Primitive Motorized* or 12.4 square miles (7,949 acres) of *Roaded Natural* ROS class portion of the La Brea Canyon HOGPA 4-56 indicates there is ample area to sustain the development without significant impacts depending on the specific locations of activities and facilities. However, the RFD development projected may not be consistent with the following ROS indicators in the *Semi-Primitive Motorized* ROS class area: access, remoteness, social encounters, visitor management, facilities and on-site development, visitor impacts and naturalness.

Colson, Alejandro and Barrel Springs Campgrounds are within the La Brea Canyon HOGPA and could be directly impacted by oil and gas development under Alternative 2.

The north and south forks of La Brea Creek running through the La Brea Canyon HOGPA are designated Wild and Scenic River areas. Oil and gas activities and facilities are not consistent with expected recreation experiences along Wild and Scenic Rivers. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a Wild and Scenic River. This can result through site, sound, vibrations and odors that are detectable. This could cause a significant impact on the experience of recreationists within the Wild and Scenic River corridor.

Access, remoteness and naturalness indicators would most likely be affected by development within this HOGPA, especially within the *Semi-Primitive Motorized* areas. Increased impacts to visitor management and social encounters indicators would affect the developed sites within this HOGPA. Because of the steep terrain of the area in natural condition these impacts could be significant.

Eighty percent of the La Brea Canyon HOGPA is contained in one of three Inventoried Roadless Areas. The majority of the HOGPA is in IRA 5116, Tapusquet Peak. A very small portion of the HOGPA at the eastern end is in a portion of IRA 5117, La Brea. The remainder of the HOGPA is a small portion in the northern part in IRA 5115, Horseshoe Springs. Most of all three Roadless Areas in the La Brea Canyon HOGPA are in ROS class *Roaded Natural* with the small remainder in *Semi Primitive Motorized*. Introducing roads in these Inventoried Roadless Areas would affect naturalness, remoteness and social encounters.

#### **4.5.9.3.6.2 Indirect Impacts**

Oil and gas activities/facilities could be apparent from Wild and Scenic River designated areas along the north and south forks of La Brea Creek. Oil and gas development outside of

designated Wild and Scenic River areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated area. This can result through site, sound, vibrations and odors that are detectable from within designated areas.

If any oil and gas ground-disturbing activities such as road building or facilities construction were located in La Brea Canyon HOGPA and it was within proximity of the San Rafael Wilderness area, it could be apparent from the Wilderness areas. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated Wilderness areas. This can result through sight, sound, vibrations and odors that are detectable from within designated Wilderness areas.

#### **4.5.9.3.7 Figueroa Mountain HOGPA – 8,745 Acres**

The Figueroa Mountain HOGPA consists of an area of 13.7 square miles located northwest of Lake Cachuma and just south of the San Rafael Wilderness. 3.5 square miles (2,269 acres or 26% of the HOGPA) is in *Semi-Primitive Non-Motorized* ROS class. 2.1 square miles (1,357 acres or 16% of the HOGPA) is in *Semi-Primitive Motorized* ROS class. 8.0 square miles (5,119 acres or 58% of the HOGPA) is *Roaded Natural* ROS class.

If Figueroa Mountain Area were developed per the RFD scenario for Alternative 2, there would be a total of 2 new wells, 1 new well pad, 1.0 mile of new road(s), and 1.0 mile of new pipeline(s). Surface disturbance would be 6.1 acres (initially) and 3.0 acres (after rehabilitation).

##### **4.5.9.3.7.1 Direct Impacts**

If any substantial oil and gas ground-disturbing activities such as road building or facilities construction were located within the 3.5 square miles (2,269 acres) of *Semi-Primitive Non-Motorized* portion of the HOGPA there would be significant impacts to the recreation setting changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class depending on the specific context, intensity and proximity to the existing oil and gas activities. New roads, pipelines and/or facilities in a non-motorized ROS class area would be inconsistent with the following setting indicators: size, access, remoteness, solitude, social encounters, on-site development, and naturalness. This would most likely result in significant direct recreation impacts.

If the RFD development estimated occurred entirely within the 2.1 square miles (1,357 acres) of *Semi-Primitive Motorized* or 8.0 square miles (5,119 acres) of *Roaded Natural* ROS class portion of the Figueroa Mountain HOGPA 4-56 indicates there is sufficient area to sustain the development without significant impacts depending on the specific locations of activities and facilities from a strictly spatial analysis. However, the RFD development projected may not be consistent with the following ROS indicators in the *Semi-Primitive Motorized* ROS class area: access, remoteness, social encounters, visitor management, facilities and on-site development, visitor impacts and naturalness.

Figueroa and Ballard Campgrounds and the Pino Alto Day Use Area are within the Figueroa Mountain HOGPA and could be directly impacted by oil and gas development under Alternative

2. It would be difficult to mitigate recreation impacts due to the large number of developed recreation sites in the area.

Social encounters, visitor management, and visitor impact indicators would most likely be affected by development within this area. The recreation area has highly developed day use and overnight facilities, as well as an extensive hiking and OHV trail network. Development almost anywhere within this HOGPA would directly affect recreation activities.

The eastern end of Figueroa Mountain HOGPA contains portions of RA 5279, De La Guerra. The portion of the RA in the HOGPA is in ROS classes *Semi-Primitive Motorized* and *Roaded Natural*. Introducing roads in these Roadless Areas would affect naturalness, remoteness and social encounters.

#### **4.5.9.3.7.2 Indirect Impacts**

If any oil and gas ground-disturbing activities such as road building or facilities construction were located in Figueroa Mountain HOGPA and it was within proximity of the San Rafael Wilderness area, it could be apparent from the Wilderness areas. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated Wilderness areas. This can result through sight, sound, vibrations and odors that are detectable from within designated Wilderness areas recreation sites.

Developed sites adjacent to the HOGPA include Figueroa, Davy Brown, and Nira Campgrounds. Sights and sounds of O&G development would indirectly affect the quality of recreation experiences at these sites. The area also serves as the main portal for the San Rafael Wilderness. Traffic, roads and development would also affect the sense of place of the area with impacts to the remoteness and naturalness of the adjacent area.

#### **4.5.9.3.8 Lopez Canyon HOGPA – 2,257 Acres**

The Lopez Canyon HOGPA consists of an area of 3.5 square miles located northwest of Lopez Lake and southwest of the San Lucia Wilderness. 2.1 square miles (1,349 acres or 60% of the HOGPA) is in *Semi-Primitive Non-Motorized* ROS class. 1.4 square miles (908 acres or 40% of the HOGPA) is *Roaded Natural* ROS class.

If Lopez Canyon Area were developed per the RFD scenario for Alternative 2, there would be a total of 2 new wells, 1 new well pad, 1.0 mile of new road(s), and 1.0 mile of new pipeline(s). Surface disturbance would be 6.1 acres (initially) and 3.0 acres (after rehabilitation).

#### **4.5.9.3.8.1 Direct Impacts**

If any substantial oil and gas ground-disturbing activities such as road building or facilities construction were located within the 2.1 square miles (1,349 acres) *Semi-Primitive Non-Motorized* portion of the HOGPA there would be significant impacts to the recreation setting changing the ROS class to either *Semi-Primitive Motorized*, *Roaded Natural* or *Rural* ROS class



depending on the specific context, intensity and proximity to the existing oil and gas activities. New roads, pipelines and/or facilities in a non-motorized ROS class area would be inconsistent with the following setting indicators: size, access, remoteness, solitude, social encounters, on-site development, and naturalness. This would most likely result in significant direct recreation impacts.

If the RFD development estimated occurred entirely within the 1.4 square miles (908 acres) of *Roaded Natural* ROS class portion of the Lopez Canyon HOGPA Table 4-56 indicates there is sufficient area to sustain the development without significant impacts depending on the specific locations of activities and facilities.

Access, remoteness, and solitude indicators would most likely be affected by development within this HOGPA. The steepness of the land, adjacent to the Santa Lucia Wilderness, would make the sights and sounds of activity a major disruption of wilderness experiences.

#### **4.5.9.3.8.2 Indirect Impacts**

If any oil and gas ground-disturbing activities such as road building or facilities construction were located in Lopez Canyon HOGPA and it was within proximity of the Santa Lucia Wilderness area, it could be apparent from the Wilderness. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated Wilderness areas. This can result through sight, sound, vibrations and odors that are detectable from within designated Wilderness areas.

The Lopez Lake recreation area is within ½ mile of the HOGPA and could be indirectly impacted, depending on location of oil and gas activities. Oil and gas activities and facilities are not consistent with developed recreation sites. Oil and gas activities and facilities can adversely impact the recreational experience in the proximity of a developed site. The potential for the impact to be significant is greater within ½ mile of the sites. The sights, sounds, vibrations, noise, and vehicles associated with oil and gas development could have a significant impact on the experience of recreationists at these developed recreation sites

#### **4.5.9.3.9 Monroe Swell HOGPA – 600 Acres**

The Monroe Swell HOGPA consists of an area of 0.9 square miles located along the eastern border of LPNF in the Monterey Ranger district approximately 2 miles east of the Ventana Wilderness and 8 miles west of King City, California. All 0.9 square miles (600 acres) of the HOGPA is in *Roaded Natural* ROS class.

If Monroe Swell Area were developed per the RFD scenario for Alternative 2, there would be a total of 2 new wells, 1 new well-pad, 1.0 mile of new road, and 1.0 mile of new pipeline. Surface disturbance would be 6.1 acres (initially) and 3.0 acres (after rehabilitation).

#### **4.5.9.3.9.1 Direct Impacts**

Table 4-56 indicates there is sufficient area to potentially sustain the development without significant impacts depending on the specific locations of activities and facilities.

#### **4.5.9.3.9.2 Indirect Impacts**

If any oil and gas ground-disturbing activities such as road building or facilities construction were located in Monroe Swell HOGPA and it was within proximity of the Ventana Wilderness area, it could be apparent from the Wilderness. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated Wilderness areas. This can result through sight, sound, vibrations and odors that are detectable from within designated Wilderness areas.

#### **4.5.9.3.10 Non-HOGPA - 627,541 acres**

The Non-HOGPA is a large (980.5 square miles) diverse area consisting of all LPNF not withdrawn from mineral entry and not within a HOGPA. No oil and gas development is reasonably foreseeable in the Non-HOGPA so no direct impacts are reasonably foreseeable there. However, under the Alternative 2 leasing scenario the Non-HOGPA would be offered for lease as well as the HOGPAs. Consequently the Non-HOGPA would be susceptible to oil and gas development even though none is reasonably foreseeable. The susceptibility of the Non-HOGPA recreation setting to impacts from oil and gas activities is discussed below.

Since this area is scattered throughout the Forest, it is likely that all of the indicators would be affected in some area of the Forest. Developed recreation site impacts are more likely within the *Roaded Natural* and Rural ROS classes, causing disturbances to social and visitor management. Access, solitude and naturalness indicators are more likely to be affected in *Semi-Primitive*, *Non-Motorized* and *Semi-Primitive, Motorized* areas.

#### **4.5.9.3.10.1 Primitive ROS Class and Wilderness Areas – 0 acres**

There are no *Primitive* ROS Class areas in the Non-HOGPA. All of the *Primitive* ROS Class areas on LPNF are in the designated Wilderness areas, which are withdrawn from leasing. So there is no *Primitive* ROS Class direct impact sensitivity. However, there are many instances where the Non-HOGPA is adjacent or in close proximity to Wilderness areas. Oil and gas development outside of designated Wilderness areas can indirectly disrupt solitude and alter the sense of remoteness and naturalness within designated Wilderness areas. This can result through site, sound, vibrations and odors that are detectable from within designated Wilderness areas.

#### **4.5.9.3.10.2 Semi Primitive – Non Motorized ROS Class – 129,119 acres**

Typical oil and gas activities are not consistent with the *Semi Primitive – Non Motorized* ROS Class indicators. *Semi Primitive – Non Motorized* ROS Class areas are susceptible to significant impacts to the recreational setting should oil and gas activities occur there. New roads, pipelines or other oil and gas facilities and activities in a *Semi Primitive – Non Motorized* ROS class area would be inconsistent with the indicator norms for the class in access, remoteness, social encounters, on-site development, and naturalness. Indirect significant recreational impacts are more likely when oil and gas activities are within ½ mile of *Semi Primitive – Non Motorized* ROS Class areas.

#### **4.5.9.3.10.3 Semi Primitive – Motorized ROS Class – 233,817 acres**

The *Semi Primitive – Motorized* ROS class indicators only differ from *Semi Primitive – Non Motorized* in Access and Naturalness. As the name implies motorized trails and primitive roads are the norm in *Semi Primitive – Motorized* ROS Class. Typical oil and gas development road standards are above the “primitive” level. Typical oil and gas activities may not be consistent with the following ROS indicators in the *Semi-Primitive Motorized* ROS class area: access, remoteness, social encounters, on-site development, and naturalness.

#### **4.5.9.3.10.4 Roded Natural ROS Class – 359,636 acres**

More than half of the Non-HOGPA area is in the adopted *Roded Natural* ROS Class. Oil and Gas activities could be located within these areas without significant impact to recreation opportunities as long as the development densities were with those stated in section 2.5.3.1.3.2.

#### **4.5.9.3.10.5 Rural ROS Class – 2,407 acres**

The part of the non-HOGPA in *Rural* ROS class is in the existing oil and gas lease in the Sespe area but outside the Sespe HOGPA. Oil and gas development within the densities indicated in section 2.5.3.1.3.2 would be consistent with the norms for the ROS setting indicators.

#### **4.5.9.3.10.6 Developed Recreation Sites**

Significant impacts could occur if oil and gas activities occurred at or adjacent to developed recreation sites on LPNF. New oil and gas activities could directly impact these sites with surface disturbances and through sights, smells or sounds. Developed recreation sites within the Non-HOGPA are listed in Table 4-57.

#### **4.5.9.3.11 Mitigation Measures and Stipulations**

Under Alternative 2, no special or additional mitigation measures or stipulations are applied to existing leases. Only BLM Standard Lease Terms apply.

Standard Lease Terms allow moving a proposed oil and gas activity 200 meters, which is approximately 1/8 mile, or delaying it up to 60 days per year. This may not be a sufficient distance or time to prevent direct or indirect impacts to the recreational experiences associated with developed sites, along Wild and Scenic River corridors, or within adjacent Wilderness areas and *Semi-Primitive Non-Motorized* ROS class areas.

BLM Standard Lease Terms could be effective mitigation in the following situations:

- *Moving oil and gas developments a maximum of 200 meters might be effective in eliminating direct on-site disruption of a developed recreation site or a recreation trail, although the indirect sights, smells or sounds of oil and gas activities still could adversely affect both developed and dispersed recreation experiences.*
- *Delaying oil and gas activities up to 60 days might be effective during the peak recreation season to eliminate on-site disruption of a developed recreation site or a recreation trail. However the recreation season on LPNF is much longer than 60 days.*

TABLE 4-57: DEVELOPED RECREATION SITES IN THE NON-HOGPA

Site Name	Ranger Dist.	Forest Map Ref.
China Camp	Monterey	D2
White Oaks	Monterey	D2
Arroyo Seco	Monterey	E3
Escondido	Monterey	E3
Memorial Park	Monterey	E4
Nacimiento	Monterey	E4
Ponderosa	Monterey	E5
Ballanger	Mt Pinos	M5
Rancho Nuevo	Mt Pinos	M7
Tinta	Mt Pinos	M7
Valle Vista	Mt Pinos	N5
Nettle Spring	Mt Pinos	N6
Ozena	Mt Pinos	N7
Reyes Creek	Mt Pinos	N7
Marian	Mt Pinos	P5
Caballo	Mt Pinos	P6
Campo Alto	Mt Pinos	P6
Chula Vista	Mt Pinos	P6
Dome Springs	Mt Pinos	P6
Mt. Pinos	Mt Pinos	P6
Toads Springs	Mt Pinos	P6
Pine Spring	Mt Pinos	P7
CSO Camp	Mt Pinos	Q6
El Camino	Mt Pinos	Q6
Frontier Pines	Mt Pinos	Q6
McGill	Mt Pinos	Q6
Half Moon	Mt Pinos	Q7
Thorn Meadow	Mt Pinos	Q7
Chuchupate	Mt Pinos	R6

Site Name	Ranger Dist.	Forest Map Ref.
Dutchman	Mt Pinos	R7
Gold Hill	Mt Pinos	R7
Kings Camp	Mt Pinos	R7
Twin Pines	Mt Pinos	R7
Hard Luck	Mt Pinos	S7
Reyes Creek	Mt Pinos	N7
Reyes Peak	Ojai	N7
Holiday	Ojai	N8
Wheeler Gorge	Ojai	N8
Beaver	Ojai	P8
Lion	Ojai	P8
Middle Lion	Ojai	P8
Piedra Blanca	Ojai	P8
Rose Valley	Ojai	P8
Cerro Alto	Santa Lucia	B1
Hi Mountain	Santa Lucia	D2
Friis	Santa Lucia	E1
American Canyon	Santa Lucia	E2
La Panza	Santa Lucia	E2
Navajo	Santa Lucia	E2
Stony Creek	Santa Lucia	E3
Stony Creek	Santa Lucia	E3
Baja	Santa Lucia	F3
Horseshoe Spring	Santa Lucia	F5
Brookshire Spring	Santa Lucia	G4
Miranda Pine	Santa Lucia	G4
Lazy	Santa Lucia	G5
Wagon Flat	Santa Lucia	G5
Nira	Santa Lucia	H6

#### 4.5.9.3.12 Cumulative Impacts

Impacts from future activities projected for Alternative 2, as described above, when coupled with other past, present and reasonably foreseeable projects and activities, present a significant cumulative impact to recreation experiences. Impacts from past and present activities including oil and gas development, fuelbreak construction/maintenance, trail construction/maintenance, pipeline activities, and highway construction/maintenance have affected recreation experiences in the existing lease areas. The Sespe area has an ROS class of *Rural*, which reflects the significant cumulative impact of past and present oil and gas activities in the Sespe oilfields. Additional development would contribute to the cumulative effects, which are already significant.

Cumulative effects would be greatest if a discovery was to occur and a new field was developed in a previously undeveloped area. Development of oil and gas per the RFD projections, if added to existing impacts, would further alter recreation settings. This could result in changes in recreation settings throughout the Study Area. Combinations of any of these activities could directly and indirectly affect both developed and dispersed recreation opportunities.

#### **4.5.9.3.13 Irreversible/Irretrievable Impacts**

New oil and gas activities such as new roads, drill pads, pipelines, utility lines, oil wells, and tank farms would create an irretrievable loss of recreation settings until the settings and landscapes were rehabilitated by obliterating roads and facilities and restoring landforms to natural contours and vegetation to native conditions. To the extent that the entire area is not rehabilitated the impact is irreversible.

#### **4.5.9.3.14 Short-term/Long-term Tradeoffs**

Development of oil and gas resources is a short-term use of the National Forest, as the resource is finite and limited in quantity. If oil and gas resources are developed and extracted in the short-term, and if recreation opportunities are degraded in the process, then the long-term tradeoff is potentially a permanent disturbance to recreation settings. Recreation resources could be permanently adversely affected, depending on the specific location of new oil and gas activities and effectiveness of rehabilitation.

#### **4.5.9.3.15 Forest Plan Consistency Discussion**

Alternative 2, Emphasize Oil and Gas Development, is inconsistent with the recreation goals of the Forest Plan for large portions of the Study Area. Oil and Gas development is inconsistent with *Primitive* and *Semi Primitive Non-Motorized* ROS classes and may be inconsistent with *Semi Primitive Motorized* and *Roaded Natural* ROS classes depending on specific location and density of development proposed. The BLM Standard Lease Terms give Forest Service the authority to relocate activities 200 meters or delay them 60 days, but this is insufficient to assure Forest Plan ROS class standards are met.

#### ***4.5.9.4 Alternative 3 - Meet Forest Plan Direction***

The goal of Alternative 3 is to meet Forest Plan direction, which, for recreation, means meeting the ROS classes adopted in the Forest Plan. Recreation opportunities that currently exist are maintained. Recreation stipulations were developed for Alternative 3 based on the results of the environmental impact and Forest Plan consistency analyses of the Alternative 2 leasing scenario. The Limited Surface Use and No Surface Occupancy stipulations are shown in Table 4-58.

These stipulations constrain any new oil and gas development, outside of existing lease areas, sufficiently to eliminate any additional significant recreation impacts discussed under Alternative 2, and to meet the ROS classes adopted in the Forest Plan. Rehabilitation of surface disruption is required after operations cease.

**4.5.9.4.1 Direct Impacts**

Under Alternative 3, no additional significant adverse impacts would occur to recreation opportunities except as they relate to existing leases discussed under Alternative 1. Developed sites, Wild and Scenic Rivers, and *Semi Primitive Non Motorized* ROS class areas would be protected by the no surface occupancy (NSO) stipulation. The density of oil and gas facilities is constrained per ROS class area by a limited surface use stipulation so that the carrying capacity of the landscape is not significantly impacted. These stipulations are listed in Table 4-58.

TABLE 4-58: ALTERNATIVE 3 RECREATION STIPULATIONS

<b>Stipulation Reference</b>	<b>Forest Plan Direction</b>	<b>Limited Surface Use</b>	<b>No Surface Occupancy Stipulations</b>
Recreation 1	Administer Developed Recreation Sites		NSO in any area within one-half (1/2) mile of a developed recreation site.*
Recreation 2	Administer Recreation Opportunity Spectrum		NSO in any area currently designated as a <i>Semi-Primitive Non-Motorized</i> ROS class.*
Recreation 3	Administer Wild & Scenic Rivers		NSO in any area within one-quarter (1/4) mile of the high waterline of any Wild & Scenic River.*
Recreation 4	Administer Recreation Opportunity Spectrum	Density of any oil and/or gas facilities is limited based on the Recreation Opportunity Spectrum (ROS) class in which the specific facility is proposed per section 2.5.3.1.3.2.*	

\* These stipulations are to be based on best available data available at the time of application. This analysis has been based on data current at the time. Such data is subject to changes and updates in the future.

#### 4.5.9.4.2 Impacts to Inventoried Roadless Areas

Table 4-59 shows the Inventoried Roadless Areas available and unavailable for surface occupancy by ROS class, by HOGPAs and the non-HOGPA area for Alternative 3. Notice that *Semi Primitive Non Motorized* (SPNM) ROS class is not available for surface occupancy. The portions of IRAs in SPNM ROS class have stronger apparent naturalness and solitude attributes. Consequently, the opportunity for dispersed recreation would be significantly impacted if oil and gas development occurred there. As a result all SPNM is under the no surface occupancy in alternatives 3, 4, and 5. Under alternatives 4a and 5a and the New Preferred Alternative all IRA's are under the no surface occupancy stipulation.

TABLE 4-59: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 3.

HOGPA / Non-HOGPA	Inventoried Roadless Areas		Occupancy Not Available NSO	Occupancy Available				Total Acres	% of HOGPA	
	ID #	Name		ROS Class						
				SPNM	SPM	RN	R			
Piedra Blanca	5002	Sespe Frazier	860			47		47	907	32.2%
		Not in an IRA	1898			10		10	1908	67.8%
		Total	2758	0	0	57	0	57	2815	100.0%
San Cayetano	5132	Nordoff	2081		10	58		68	2149	16.0%
	5002	Sespe Frazier	9431		209	2		211	9642	71.7%
		Subtotal Roadless	11508		222	61	0	283	11791	87.7%
		Not in an IRA	1630		16	7		23	1653	12.3%
		Total	13138	0	238	68	0	306	13444	100.0%
Sespe	5002	Sespe Frazier	5691				99	99	5790	44.9%
		Not in an IRA	6086				1006	1006	7092	55.1%
		Total	11777		0	0	1105	1105	12882	100.0%
Rincon Creek	5130	White Ledge	763		489	501		990	1753	19.4%
		Not in an IRA	6007		338	954		1292	7299	80.6%
		Total	6770	0	827	1455	0	2282	9052	100.0%
South Cuyama	5134	Sawmill-Badlands	3406		10532	5255		15787	19193	23.9%
	5124	Madulce-Buckhorn	305		99	114		213	518	0.6%
	5120	Fox Mountain	15865		20801	870		21671	37536	46.8%
	5135	Cuyama	11194		5677	367		6044	17238	21.5%
	5118	Spoor Canyon	131			122		122	253	0.3%
		Subtotal Roadless	30901		37109	6728	0	43837	74738	93.1%
		Not in an IRA	2347		1613	1560		3173	5520	6.9%
	Total	33248	0	38722	8288	0	47010	80258	100.0%	
La Brea Canyon	5116	Tapusquet Peak	4649			1167		1167	5816	62.7%
	5117	La Brea	592		214	145		358	950	10.2%
	5115	Horseshoe Springs	587		95	37		132	720	7.8%
		Subtotal Roadless	5838		309	1339	0	1648	7486	80.7%
		Not in an IRA	1039		483	266		749	1787	19.3%
	Total	6877	0	792	1605	0	2397	9273	100.0%	
Figueroa Mtn.	5279	De La Guerra	360		21	36		57	417	4.8%
		Not in an IRA	7540		256	532		788	8328	95.2%
		Total	7900	0	277	568	0	845	8745	100.0%
Lopez Canyon		Not in an IRA	2205			52		52	2257	100.0%
Monroe Swell		Not in an IRA	570			30		30	600	100.0%
Total HOGPA's		Roadless (IRA)	55921		38150	8712	99	46961	102882	73.8%
		Not in an IRA	29322		2706	3411	1006	7123	36444	26.2%
		Total HOGPA's	85243	0	40856	12123	1105	54084	139326	100.0%

#### **4.5.9.4.3 Indirect Impacts**

Under Alternative 3, there would be no indirect impacts to recreation resources except those that carry over from existing leases (see Alternative 1 discussion). The no surface occupancy buffers of ½ mile buffer around developed sites and the ¼ mile either side of Wild and Scenic Rivers should mitigate any potential impact below the level of significance in those areas.

#### **4.5.9.4.4 Cumulative Impacts**

Under Alternative 3, cumulative impacts would be similar to Alternative 1. There would be additional oil and gas activities throughout the Study Area (see RFD for Alternative 3). However, these new oil and gas activities would be sufficiently constrained by stipulations that no additional significant adverse impacts would occur to recreation resources or experiences except as they relate to existing leases discussed under Alternative 1.

#### **4.5.9.4.5 Irreversible/Irretrievable Impacts**

Irreversible and irretrievable impacts as described under Alternative 1 could still occur. Irretrievable surface disturbing impacts could potentially reach 58.5 acres during construction and be mitigated to 39 acres during operations as cut and fills slopes and other areas disturbed during construction are rehabilitated. All disturbed areas are to be permanently rehabilitated at termination of each lease so there should be no long-term irreversible impacts.

#### **4.5.9.4.6 Short-term/Long-term Tradeoffs**

There should be no significant long-term tradeoff of recreational opportunity since all impacted lands that are disturbed are to be rehabilitated. However, if rehabilitation is not successful, there could be a long-term trade off of the quality of recreation opportunity.

#### **4.5.9.4.7 Mitigation Measures and Stipulations**

The recreation stipulations shown in the Table 4-58 were developed for Alternative 3 in order to achieve the adopted ROS classes and protect existing recreation resources. Areas where these stipulations would be applied are shown in the map in the DEIS map packet entitled *Recreation Stipulations Alternative 3; Meet Forest Plan Direction*.

#### **4.5.9.4.8 Forest Plan Consistency Discussion**

Alternative 3, Meet Forest Plan Direction, is not consistent with the Forest Plan to the same extent that Alternative 1 is not consistent. Alternative 1 represents continuation of the existing oil and gas leases that can continue within existing lease areas under all leasing scenarios. The density of the existing development within the two existing lease parcels within the Cuyama oil field and within the Sespe oil field do not meet the density requirements of the adopted ROS class of *Roaded Natural* and *Rural* respectively. Alternative 3 is only inconsistent in relation to existing lease impacts. Recreation stipulations for Alternative 3 reduce potentially significant



adverse recreation impacts of any new leases. Any new leases under Alternative 3 would be consistent with the Forest Plan.

**4.5.9.5 Alternative 4 - Emphasize Resource Values**

The recreation goal of Alternative 4, "Emphasize Surface Resource," is to enhance recreation resources where possible, in addition to meeting all the adopted ROS classes per the Forest Plan. All Alternative 3 recreation stipulations apply to Alternative 4 as well to assure any new leases meet Forest Plan direction. Additional Alternative 4 stipulations, as shown in Table 4-60, were developed for rehabilitation of existing recreation sites and ROS settings to compensate for the irretrievable impact of surface disturbance during oil and gas exploration and operation. Rehabilitation of surface disruption resulting from oil and gas activities is already required after operations cease. This alternative requires in-kind rehabilitation off-site to compensate for the surface disruption that will occur during exploration and operational phases. These stipulations allow oil and gas development in some areas while at the same time rehabilitating existing impacts to recreation opportunities in other areas.

TABLE 4-60: ALTERNATIVE 4 RECREATION STIPULATIONS

Stipulation Reference	Forest Plan Direction	Limited Surface Use – LSU <sup>1/</sup>
Alternative 4 Recreation 1	Forest Plan; Administer Developed Recreation Sites	For any new lease activity and / or facility that is situated between one-half (1/2) mile and one (1) mile of any existing developed recreation site, the lessee shall rehabilitate/enhance existing recreation resource values and/or facilities. The lessee shall prepare a Developed Recreation Plan for the rehabilitation / enhancement of the recreation experiences at developed recreation sites, and shall submit the Plan to FS for approval prior to implementation. The Lessee and FS shall negotiate recreation rehabilitation work to be done by the Lessee.
Alternative 4 Recreation 2	Forest Plan; Administer Recreation Opportunity Spectrum	For any new lease activity and / or facility that is within three (3) miles of any <i>Primitive</i> ROS class, the lessee shall prepare a Dispersed Recreation Plan for the rehabilitation / enhancement of the recreation experience at dispersed recreation areas, and shall submit the Plan to the Forest Service for approval prior to implementation. The Lessee and FS shall negotiate recreation rehabilitation work to be done by the Lessee.

<sup>1/</sup> These rehabilitation/enhancement activities may require NEPA documents and must result in a minimum of no net loss of recreational opportunities as determined by FS.

Table 4-61 shows the Inventoried Roadless Areas available and unavailable for surface occupancy by ROS class, by HOGPAs and the non-HOGPA area for Alternative 4. Notice that *Semi Primitive Non Motorized* (SPNM) ROS class is not available for surface occupancy. The portion of IRAs in SPNM ROS class has stronger apparent naturalness and solitude attributes. Consequently the opportunity for dispersed recreation would be significantly impacted if oil and gas development occurred there. Since Alternative 4 includes Alternative 3 stipulations, all SPNM is under the no surface occupancy in Alternative 4.

#### **4.5.9.5.1 Direct Impacts**

Under Alternative 4, no additional significant adverse impacts would occur to recreation opportunities except as they relate to existing leases discussed under Alternative 1. Some existing recreation settings could be rehabilitated and enhanced if new oil and gas activities occurred in various locations. Alternative 4 lease stipulations require off-site rehabilitation of existing developed recreation values and or facilities whenever development occurs between ½ and 1 mile of existing developed recreation sites (no occupancy is allowed within ½ mile of a developed recreation site). In addition, rehabilitation of dispersed recreation facilities is required whenever development occurs within 3 miles of *Primitive* ROS class areas. As a result the only negative recreational impacts from Alternative 4 would be those resulting from the continuation of existing leases. Furthermore, there could be rehabilitation of some existing developed and dispersed recreation impacts as a result of the Alternative 4 stipulations.

#### **4.5.9.5.2 Indirect Impacts**

Under Alternative 4, there would be no significant indirect impacts to recreation resources except those from existing leases.

#### **4.5.9.5.3 Cumulative Impacts**

Under Alternative 4, cumulative impacts would be similar to Alternative 1, except that there would be additional oil and gas activities throughout the Study Area (see RFD for Alternative 4) and there may be off-site mitigation at developed and dispersed recreation sites and landscape settings. Oil and gas activities under any new leases would be sufficiently constrained by stipulations that no additional significant adverse impacts would occur to recreation opportunities.

#### **4.5.9.5.4 Irreversible/Irretrievable Impacts**

Under Alternative 4, irreversible/irretrievable impacts would be similar to Alternative 3. However, there is an opportunity to mitigate irretrievable impacts at existing developed and dispersed recreation settings to the extent oil and gas development occurs within 1 mile to ½ mile of developed recreation sites or within 3 miles of *Primitive* ROS class areas.

#### **4.5.9.5.5 Short-term/Long-term Tradeoffs**

There should be no additional significant long-term tradeoff of recreational opportunity since all impacted lands that are disturbed are to be rehabilitated. However, if rehabilitation is not successful there could be a long-term trade off of recreation opportunity. In addition, there may be off-site rehabilitation of existing irretrievable impacts.

#### **4.5.9.5.6 Mitigation Measures and Stipulations (based on RFD)**

Two additional recreation stipulations (Table 4-60) were developed for Alternative 4 in order to provide lessees an incentive to rehabilitate and/or enhance recreation resources on the Forest.

The map in the DEIS map packet entitled *Recreation Stipulations Alternative 4; Emphasize Surface Resources* shows location of recreation stipulations for Alternative 4.

TABLE 4-61: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 4.

HOGPA / Non-HOGPA	Inventoried Roadless Areas		NSO	Occupancy Available				Total Acres	% of HOGPA
	ID #	Name		ROS Class			Total Available		
				SPM	RN	R			
Piedra Blanca	5002	Sespe Frazier	860	0	47	0	47	907	32.2%
		Not in an IRA	1898	0	10	0	10	1908	67.8%
		Total	2758	0	57	0	57	2815	100.0%
San Cayetano	5132	Nordoff	2081	10	58	0	68	2149	16.0%
	5002	Sespe Frazier	9427	213	2	0	215	9642	71.7%
		Subtotal Roadless	11508	223	60	0	283	11791	87.7%
		Not in an IRA	1630	16	7	0	23	1653	12.3%
		Total	13138	239	67	0	306	13444	100.0%
Sespe	5002	Sespe Frazier	5747	0	0	43	43	5790	44.9%
		Not in an IRA	6224	0	0	868	868	7092	55.1%
		Total	11971	0	0	911	911	12882	100.0%
Rincon Creek	5130	White Ledge	763	488	502	0	990	1753	19.4%
		Not in an IRA	6007	335	957	0	1292	7299	80.6%
		Total	6770	823	1459	0	2282	9052	100.0%
South Cuyama	5134	Sawmill-Badlands	4404	9995	4794	0	14789	19193	23.9%
	5124	Madulce-Buckhorn	309	97	111	0	209	518	0.6%
	5120	Fox Mountain	16275	20541	720	0	21261	37536	46.8%
	5135	Cuyama	11321	5557	360	0	5917	17238	21.5%
	5118	Spoor Canyon	133		120	0	120	253	0.3%
		Subtotal Roadless	32442	36190	6106	0	42296	74738	93.1%
		Not in an IRA	2656	1493	1371	0	2864	5520	6.9%
		Total	35098	37683	7477	0	45160	80258	100.0%
La Brea Canyon	5116	Tapusquet Peak	4720	0	1096	0	1096	5816	62.7%
	5117	La Brea	612	206	131	0	338	950	10.2%
	5115	Horseshoe Springs	588	95	37		132	720	7.8%
		Subtotal Roadless	5920	301	1264	0	1566	7486	80.7%
		Not in an IRA	1069	479	239	0	718	1787	19.3%
	Total	6989	780	1504	0	2284	9273	100.0%	
Figueroa Mtn.	5279	De La Guerra	360	21	36		57	417	4.8%
		Not in an IRA	7628	232	468	0	700	8328	95.2%
		Total	7988	253	504	0	757	8745	100.0%
Lopez Canyon		Not in an IRA	2205	0	52	0	52	2257	100.0%
Monroe Swell		Not in an IRA	570	0	30	0	30	600	100.0%
Total HOGPA's		Roadless (IRA)	57600	37223	8015	43	45282	102882	73.8%
		Not in an IRA	29887	2555	3134	868	6557	36444	26.2%
		Total HOGPA's	87487	39778	11150	911	51839	139326	100.0%

#### 4.5.9.5.7 Forest Plan Consistency Discussion

Alternative 4 is consistent with the Forest Plan, except in existing lease areas as described under Alternative 1. Any new leases under Alternative 4 would be consistent with the Forest Plan.

#### **4.5.9.6 Alternative 4a - Alternative 4 with Roadless Area Emphasis**

Since Alternative 4 has no projected potentially significant impacts, neither does Alternative 4a. Furthermore, any non-significant direct impacts that would occur to IRAs in Alternative 4 are eliminated in Alternative 4a. Alternative 4a adds 44,945 acres of the IRAs not already under NSO to NSO. Alternative 4a is in compliance with the recreational requirements of the Forest Plan.

#### **4.5.9.7 Alternative 5 - Combination of Alternatives 3 & 4**

Alternative 5 is a combination of Alternative 3 in the HOGPAs and Alternative 4 in the non-HOGPA area. Alternative 4 biological stipulations apply in the HOGPAs as well as the non-HOGPA. In addition, areas that would otherwise be NSO are not leased (NL) if they cannot be reached by conventional slant drilling. This removes 16,015 acres from the lease area for Alternative 5. Since the RFD projects no reasonably foreseeable oil and gas activities in the non-HOGPA, there are no impacts to recreational opportunity there. The HOGPAs are under Alternative 3 stipulations for all resources with the addition of Alternative 4 biological stipulations. The Alternative 4 biological stipulations are not expected to change the recreational opportunities compared to Alternative 3. NSO areas changing to no lease (NL) do not change recreational opportunities since the lands are not occupied in either case. Consequently, the Alternative 5 impacts to recreational opportunities and Forest Plan compliance are essentially the same as Alternative 3.

The availability of IRAs for surface occupancy under Alternative 5 is shown in Table 4-62.

#### **4.5.9.8 Alternative 5a - Alternative 5 with Roadless Area Emphasis**

Alternative 5a is Alternative 5 with IRA's under the no surface occupancy stipulation. This extends the no surface occupancy in IRA's from the SPNM ROS class to all ROS classes further protecting the IRAs from any direct developmental impacts. Furthermore if the resultant NSO areas cannot be reached by current slant drilling, the area otherwise in NSO is not leased (NL). This removes 62,176 acres of the area being offered for lease.

#### **4.5.9.9 New Preferred Alternative**

This alternative proposes leasing the South Cuyama, Sespe, and San Cayetano HOGPAs with Alternative 5a stipulations. The remaining HOGPAs – Piedra Blanca, Figueroa Mountain, La Brea, Monroe Swell, Lopez Canyon, and Rincon Creek – would not be leased.

The New Preferred Alternative would not allow leasing in 2,122 acres of *Semi-Primitive Motorized* and *Roaded Natural* ROS classes that might otherwise be developed in Alternative 5a.

TABLE 4-62: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 5.

HOGPA / Non-HOGPA	Inventoried Roadless Areas		Occupancy Unavailable			Occupancy Available				Total Acres	% of HOGPA
	ID #	Name	No Lease	NSO	Total	ROS Class			Total Available		
						SPM	RN	R			
Piedra Blanca	5002	Sespe Frazier	793	67	860	0	47	0	47	907	32.2%
		Not in IRA	1201	698	1899	0	9	0	9	1908	67.8%
		Total	1994	765	2759	0	56	0	56	2815	100.0%
San Cayetano	5132	Nordoff	669	1409	2078	10	61	0	71	2149	16.0%
	5002	Sespe Frazier	4124	5291	9415	218	9	0	227	9642	71.7%
		Subtotal Roadless	4793	6700	11493	228	70	0	298	11791	87.7%
		Not in IRA	0	1610	1610	20	23	0	43	1653	12.3%
		Total	4793	8310	13103	248	93	0	341	13444	100.0%
Sespe	5002	Sespe Frazier	2529	3155	5684	0	0	106	106	5790	44.9%
		Not in IRA	536	5546	6082	0	0	1010	1010	7092	55.1%
		Total	3065	8701	11766	0	0	1116	1116	12882	100.0%
Rincon Creek	5130	White Ledge	312	507	819	475	459	0	934	1753	19.4%
		Not in IRA	659	5385	6044	338	917	0	1255	7299	80.6%
		Total	971	5892	6863	813	1376	0	2189	9052	100.0%
South Cuyama	5134	Sawmill-Badlands	0	3394	3394	10585	5214	0	15799	19193	23.9%
	5124	Madulce-Buckhorn	13	299	312	96	110	0	206	518	0.6%
	5120	Fox Mountain	1873	13973	15846	20838	852	0	21690	37536	46.8%
	5135	Cuyama	1630	9622	11252	5604	382	0	5986	17238	21.5%
	5118	Spoor Canyon	0	133	133	0	119	0	119	253	0.3%
		Subtotal Roadless	3516	27421	30937	37123	6677	0	43800	74738	93.1%
		Not in IRA		2364	2364	1605	1551	0	3156	5520	6.9%
	Total	3516	29785	33301	38728	8228	0	46956	80258	100.0%	
La Brea Canyon	5116	Tapusquet Peak	234	4423	4657	0	1159	0	1159	5816	62.7%
	5117	La Brea	0	592	592	214	144	0	358	950	10.2%
	5115	Horseshoe Springs	0	587	587	96	37	0	133	720	7.8%
		Subtotal Roadless	234	5603	5837	309	1340	0	1650	7486	80.7%
		Not in IRA	17	1021	1038	482	267	0	749	1787	19.3%
		Total	251	6624	6875	791	1607	0	2398	9273	100.0%
Figueroa Mtn.	5279	De La Guerra	0	364	364	17	36	0	53	417	4.8%
		Not in IRA	1425	6145	7570	261	497	0	758	8328	95.2%
		Total	1425	6509	7934	278	533	0	811	8745	100.0%
Lopez Canyon		Not in IRA	0	2187	2187	70	0	0	70	2257	100.0%
Monroe Swell		Not in IRA	0	570	570	0	30	0	30	600	100.0%
Total HOGPA's		IRA	12177	43817	55994	38152	8630	106	46888	102882	73.8%
		Not in IRA	3838	25526	29364	2776	3294	1010	7079	36444	26.2%
		Total HOGPA's	16015	69343	85358	40928	11924	1116	53968	139326	100.0%

#### 4.5.9.10 Analysis of Geographic Concern Areas

Table 4-63 shows the consequences of each alternative leasing scenario relative to the geographic areas of concern listed in Table 3-46 in section 3.3.9.2 of Chapter 3.

TABLE 4-63: ANALYSIS OF AREAS OF CONCERN

Geographic Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a	New Preferred Alternative
1 Entire LPNF	See Chapter 4 regarding consequences of each alternative forest wide.							
2 South forest area, Solvang to Lake Piru	The only impacts would be from existing leases in the Sespe and San Cayetano HOGPAs in areas already developed. No additional significant impacts are expected.	Oil and gas development in the Sespe, San Cayetano and Rincon Creek HOGPAs could result in significant direct and indirect impacts to developed and dispersed recreation in the south forest area.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irremediable impacts.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irremediable impacts.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irremediable impacts.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irremediable impacts.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irremediable impacts.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irremediable impacts.
3 Figueroa Mt.	There are no oil and gas activities in or close to this area that would cause direct or indirect impacts to recreational opportunities.	Significant impacts could occur to developed and dispersed recreation depending on the specific location of oil and gas activities within the Figueroa Mt. HOGPA.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.
4 Tepusquet Peak	There are no oil and gas activities in or close to this area that would cause direct or indirect impacts to recreational opportunities.	Tepusquet Peak is within the La Brea Canyon HOGPA. Direct impacts to Alejandro, Barrel Springs, and Colson campgrounds, all within this HOGPA are possible.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.

Geographic Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a	New Preferred Alternative
5 Lopez Reservoir	There are no oil and gas activities in or close to this area that would cause direct or indirect impacts to recreational opportunities.	Significant impacts could occur to developed and dispersed recreation depending on the specific location of oil and gas activities within the Lopez Canyon HOGPA.	Lease stipulations will assure that any activities under new leases will not add any significant impacts to recreational opportunities.					
6 Highway 33 south of crest	No significant recreation impacts would occur within the Highway 33 corridor as a result of oil and gas activities under any alternative.							
7 Wheeler Gorge	No significant recreation impacts would occur in or near Wheeler Gorge as a result of oil and gas activities under any alternative.							
8 Matilija Canyon	There are no projected oil and gas activities in, or close to, this area that could cause direct or indirect impacts to recreational opportunities under any alternative.							
9 Matilija Creek	There are no projected oil and gas activities in, or close to, this area that could cause direct or indirect impacts to recreational opportunities under any alternative.							
10 Teague Memorial Watershed (Lake Casitas & Watershed)	No oil and gas activities are in or close to this area that could cause direct or indirect impacts to recreational opportunities.	Potential indirect impacts in Rincon HOGPA. Area is off LPNF under Bureau of Reclamation jurisdiction. Bureau of Reclamation is proposing entire Lake Casitas watershed be withdrawn from mineral entry.	There are no projected oil and gas activities in, or close to, Lake Casitas that could cause direct or indirect impacts to recreational opportunities or the memorial watershed under any alternative.					

Geographic Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a	New Preferred Alternative
11 Ojai Valley viewshed	Potential significant impacts from oil and gas activities in the San Cayetano HOGPA.	Potential significant impacts from oil and gas activities in the San Cayetano HOGPA.						
12 Pine Mt.	There are no projected oil and gas activities in, or close to, this area that could cause direct or indirect impacts to recreational opportunities under any alternative.							
13 Arroyo Seco watershed								
14 Upper San Antonio River								
15 Santa Lucia, Mem. Park								
16 Ballinger Canyon								
17 Rock Front								
18 Kerry Canyon								
19 Tinta Trail								
20 Montecito viewshed								
21 Santa Barbara & Ventura County	There are no projected oil and gas activities in, or close to, these areas that could cause direct or indirect impacts to recreational opportunities under any alternative.							
	Ventura County contains Sespe, San Cayetano, most of Rincon Creek and the eastern end of the South Cuyama HOGPAs. Santa Barbara County contains Figueroa Mt., La Brea Canyon, most of South Cuyama, and the western end of Rincon Creek HOGPAs. Refer to Chapter 4 and the specific HOGPAs for each alternative's consequences.							



Geographic Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a	New Preferred Alternative
22 San Rafael Range	No oil and gas activities are in or close to this area that would cause direct or indirect impacts to recreational opportunities.	Oil and gas activities in the Figueroa Mt. HOGPA may be detectable from southern slopes of the San Rafael Range and impact dispersed recreation opportunities.	Lease stipulations will assure that activities under new leases will not result in significant impacts to recreational opportunities.					
23 Sierra Madre Ridge	Existing oil and gas activities in the South Cuyama area may be detectable from northern slopes of the San Rafael Range and impact dispersed recreation opportunities.	Oil and gas activities in the South Cuyama. HOGPA may be detectable from northern slopes of the San Rafael Range and impact dispersed recreation opportunities.	Lease stipulations will assure that activities under new leases will not result in significant impacts to recreational opportunities.					
24 South of Santa Ynez Mountains	No oil and gas activities in or close to this area that would cause direct or indirect impacts to recreational opportunities.	Oil and gas activities in the Rincon Creek HOGPA could impact the east end of the area south of the Santa Ynez mountains just north of Lake Casitas.	Lease stipulations will assure that activities under new leases will not result in significant impacts to recreational opportunities.					
25 Lake Cachuma	The entire Santa Ynez watershed is withdrawn from mineral entry and is not a part of the oil and gas leasing study area. Consequently there would not be any impact to Lake Cachuma under any alternative.							

Geographic Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a	New Preferred Alternative
26 Senior Canyon	Development projected will not result in any direct or indirect impact to recreational opportunities in Senior Canyon.	Recreation activities in Senior Canyon may be indirectly impacted by oil and gas activities in the nearby San Cayetano HOGPA.						
27 "The Indian"	No significant impacts would occur to "the Indian" as a result of oil and gas activities under any alternative.							
28 Monterey County	There are no oil and gas activities in or close to Monterey County that would cause direct or indirect impacts to recreational opportunities.	Most of LPNF in Monterey County is either in the Coastal Zone, Ventana Wilderness, or Silver Peak Wilderness, all of which are withdrawn from mineral entry. There is only one HOGPA, the Monroe Swell, in Monterey County. Projected oil and gas activities for the Monroe Swell HOGPA would not have significant direct impacts but may indirectly impact the Ventana Wilderness.						There is no projected oil and gas activity in Monterey County that could cause direct or indirect impacts to recreational opportunities under any of these alternatives.
29a Wilderness	Wilderness Areas are withdrawn from mineral entry and will not be directly impacted.							

Geographic Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a	New Preferred Alternative
29b Wilderness Values in Inventoried Roadless Areas	Portions Existing IRAs Spoor Canyon, 5118, and Fox Mountain, 5120 are within existing leases in the South Cuyama area. Development on these leases could significantly impact the wilderness values in these IRAs.	Portions of 12 IRAs (see Tables 3-57 and 3-58) are within the HOGPAs and would be vulnerable to potentially significant impacts to the wilderness values in these IRAs depending on the development occurred in.	The portions of the IRAs vulnerable to potentially significant impacts in Alternative 2 are in the SPNM ROS class. SPNM is protected from development by a NSO stipulation.		All IRA's are under no surface occupancy stipulation and thus will not be directly impacted.	The portions of the IRAs vulnerable to potentially significant impacts in Alternative 2 are in SPNM ROS class. SPNM is protected from development by a NSO stipulation in Alternative 5.	All IRA's are either no lease or under a no surface occupancy stipulation and thus will not be directly impacted.	All IRA's are either no lease or under a no surface occupancy stipulation and thus will not be directly impacted.