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 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 the activities.***

Using the information regarding the potentially affected environment described in Chapter 3 and a description of potential oil and gas activities as detailed in Appendices C and D, resource specialists identified the types of impacts that each alternative could have relative to the issues identified. 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 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 Separate unpublished background reports were prepared for air, watershed, biological, recreation, scenic, and cultural resources addressed in Chapter 3 and Chapter 4.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 accompanying 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 as 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 in Appendix D.

4.2.2. Indirect Effects

Indirect effects are caused by a specific action or activity but typically occur later in time or farther in distance. 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 the Affected Environment chapter.

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 of the Los Padres National Forest (LPNF) Forest Plan is made where applicable.

4.3. PHYSICAL ENVIRONMENT

4.3.1. Introduction

The issues related to the physical environment relate to air quality and watershed resources. The environmental consequences for each of these areas 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.

Other types of air quality impacts are assessed qualitatively; more thorough analysis would be required after leases are sold when lessees submit more site-specific plans of operation.

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 thresholds. The second impact discusses the potential for the project to exceed the ambient air quality standards listed in Table 4-1. The third impact discusses the potential for the project to generate unacceptable off-site odors. And the fourth impact discusses the consistency of the project with applicable air quality management plans. 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

Significance Criteria for Impact Type 1: Pollutant Emissions

Table 4-1 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 4-1: SIGNIFICANCE CRITERIA FOR EMISSIONS DURING PROJECT OPERATIONS

Air District	Emission Sources	NO_x	ROC	SO_x	CO	PM_{10}
Santa Barbara County APCD	Motor Vehicles Only	25 lb/day	25 lb/day	--	--	--
	All Project Sources	240 lb/day; 25 ton/yr	240 lb/day; 25 ton/yr	--	100 ton/yr	80 lb/day; 15 ton/yr
Ventura County APCD	All Project Sources	25 lb/day[a]	25 lb/day[a]	--	--	--
Monterey Bay Unified APCD	All Project Sources	150 lb/day	150 lb/day	--	--	--
	Onsite Sources Only	--	--	150 lb/day	550 lb/day	82 lb/day
San Luis Obispo APCD	All Project Sources	25 lb/day; 25 ton/yr	25 lb/day; 25 ton/yr	25 lb/day; 25 ton/yr	550 lb/day; 25 ton/yr	25 lb/day; 25 ton/yr

[a]*Applies to projects located outside the Ojai Valley Clean Air Ordinance (CAO) area and the Ventura 1 Non-growth area.*

Ozone, which is formed through photochemical reactions involving NO_x 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_x and ROC in Table 4-1 were used to provide a definitive indication of the project's impacts on regional ozone concentrations.

The other criteria pollutants (SO_x, CO, and PM_{10}) 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_x, CO, and PM_{10}, 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 is significant.

To compare project emissions to the significance thresholds established by each air district, emissions from all prospect areas within each district were summed. This method results in an extremely conservative estimate for peak daily emissions, as it assumes that peak emissions from all prospect areas occur on the same day. In addition, prospect areas that span two different air districts are included in the summed emissions for both districts.

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_x 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_x 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.

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, should be performed at the project level, when sufficient detail is available for a thorough analysis.

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_x 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. 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). Hence, 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).

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. As a result, the proposed project is not expected to create significant odor impacts.

4.3.2.3. Mitigation Measures

The following mitigation measures 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 should be used where appropriate on each project. After consultation with the applicable county APCD, appropriate measures should be applied to individual projects even if the impacts of the individual project would be less than significant. If additional mitigation measures are identified during project-level analysis, they should supplement the measures presented here.

4.3.2.3.1. Construction Mitigation

1. *If onsite electricity is available, electric drill rigs shall be used.*
2. *During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions should be controlled by regular watering, paving construction roads, or other dust preventive measures using the following procedures:*
   - *A. All material excavated or graded should be sufficiently watered to prevent excessive amounts of dust. Watering should occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.*
   - *B. All clearing, grading, earth moving, or excavation activities should cease during periods of high winds (greater than 20 mph averaged over one hour) so as to prevent excessive amounts of dust.*
   - *C. All material transported off-site should be either sufficiently watered or securely covered to prevent excessive amounts of dust.*
   - *D. Employees involved in grading or excavation shall take appropriate measures consistent with OSHA to minimize the risks of exposure to San Joaquin Valley fever.*
   - *E. The area disturbed by clearing, grading, earth moving, or excavation operations should be minimized so as to prevent excessive amounts of dust.*

3. *After clearing, grading, earth moving, or excavation operations, and during construction activities, fugitive dust emissions should be controlled using the following procedures:*
   A. *All inactive portions of the construction site should be seeded and watered until ground cover is grown.*
   B. *All active portions of the construction site should be sufficiently watered to prevent excessive amounts of dust.*

4.3.2.3.2. Mitigation for All Project Phases

1. *Prior to project startup, the USDA Forest Service should coordinate with the affected air districts so that the districts can begin to incorporate the expected project emissions into the AQMPs.*
2. *Electric power should be brought to the site as soon as possible after well production begins.*
3. *Electric well pumps should be used whenever feasible.*
4. *All unpaved areas with vehicle traffic should be watered periodically (this measure was assumed part of the project in the fugitive dust emission calculations for access roads).*
5. *Equipment engines should be maintained in good condition and in proper tune as per manufacturer's specifications.*
6. *During smog season (May through October), the number of vehicles and equipment operating at the same time should be minimized.*
7. *New technologies to control ozone precursor emissions should be used as they become available and feasible.*
8. *Additional mitigation measures that can be considered for specific projects include:*
   A. *Use methanol or natural gas powered crew vehicles and on-site mobile equipment.*
   B. *Acquire emission offsets for unpermitted source NO_x and ROC emissions generated by the project.*
   C. *Contribute monetarily to an off-site transportation demand management (TDM) facility (e.g., bike path, transit shelters, etc.)*
   D. *Require all well pumps to be operated on electricity.*

4.3.2.4. Impacts of Alternative 1: No Action, No New Leasing

4.3.2.4.1. Direct Impacts

Table 4-2 lists the resulting 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_x 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 0 lb/day for both ROC and NO_x. Therefore, offsets would be triggered for both ROC and NO_x at all prospect areas. As a result, NO_x 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, emissions of both ROC and NO_x exceed their respective significance thresholds. Therefore, ozone impacts would be significant. Other pollutants (SO_x, CO, and PM_{10}) 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, ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts would continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO_x and PM_{10} 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 240 lb/day or 25 ton/yr for NO_x or ROC. Based on the emission estimates for this alternative, NO_x offsets would likely be required, but ROC offsets would probably not be required. As a result, the NO_x 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_{10} include all sources except power plants.

During maximum development activity, emissions of ROC, NO_x, and PM_{10} exceed their respective significance thresholds. Emissions of CO are less than the significance threshold. SO_x has no significance criterion. Therefore, ozone impacts would be significant. CO impacts would be non-significant. For PM_{10} and SO_x, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

TABLE 4-2: COMPARISON OF PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTERNATIVE 1

Air District	Emission Sources	Pollutant	Emission Units	Short Term Project Emissions	Long Term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO_x	lb/day	1,600	4	25
		ROC	lb/day	181	5	25
	All Project Sources	NO_x	lb/day	1,727	4	240
			ton/yr	25	1	25
		ROC	lb/day	217	42	240
			ton/yr	10	8	25
		CO	ton/yr	50	26	100
		PM_{10}	lb/day	2,496	0.4	80
			ton/yr	62	0.1	15
Ventura County APCD	All Project Sources	NO_x	lb/day	2,218	11	25
		ROC	lb/day	259	50	25
Monterey Bay Unified APCD	All Project Sources	NO_x	lb/day	n/a	n/a	150
		ROC	lb/day	n/a	n/a	150
	On-Site Sources Only	SO_x	lb/day	n/a	n/a	150
		CO	lb/day	n/a	n/a	550
		PM_{10}	lb/day	n/a	n/a	82
San Luis Obispo APCD	All Project Sources	NO_x	lb/day	n/a	n/a	25
			ton/yr	n/a	n/a	25
		ROC	lb/day	n/a	n/a	25
			ton/yr	n/a	n/a	25
		SO_x	lb/day	n/a	n/a	25
			ton/yr	n/a	n/a	25
		CO	lb/day	n/a	n/a	550
			ton/yr	n/a	n/a	25
		PM_{10}	lb/day	n/a	n/a	25
			ton/yr	n/a	n/a	25

Note: Exceedances of the significance criteria are shaded.

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

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 expected to be non-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_x, CO, and PM_{10}) 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 is not consistent with the AQMP, then its cumulative ozone impacts would be significant.

4.3.2.4.4. Irreversible/Irretrievable Impacts

The proposed project would not produce any irreversible or irretrievable air quality impacts. The air quality setting of the project area would return to its pre-project conditions if the project were to cease operations.

4.3.2.4.5. Short Term/Long Term Tradeoffs

There would be no short term/long term tradeoffs associated with the proposed project. When the project ceases, the long-term emissions associated with the project would cease, and air quality would return to its pre-project state.

4.3.2.4.6. Mitigation Measures

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development would 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_x 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.

4.3.2.4.7. 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.

4.3.2.4.8. 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.

4.3.2.5. Impacts of Alternative 2: Emphasize Oil and Gas Development

4.3.2.5.1. Direct Impacts

Table 4-3 lists the resulting 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_x. Based on the emission estimates, emission offsets would probably not be triggered for either ROC or NO_x. As a result, the emissions in Table 4-3 for San Luis Obispo County include all project emissions except power plant emissions (already permitted).

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

After project buildout, NO_x emissions exceed the daily threshold and CO emissions exceed the annual threshold. Therefore, long-term ozone impacts would 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_x. Based on the emission estimates, emission offsets would probably not be triggered for either ROC of NO_x. Therefore, the emissions for Monterey County include all project emissions except power plant emissions (already permitted).

During maximum development activity, emissions of all pollutants exceed their respective significance thresholds. Therefore, ozone impacts would 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.

TABLE 4-3: COMPARISON OF PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTERNATIVE 2

Air District	Emission Sources	Pollutant	Emission Units	Short Term Project Emissions	Long Term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO_x	lb/day	5,838	15	25
		ROC	lb/day	634	21	25
	All Project Sources	NO_x	lb/day	6,705	190	240
			ton/yr	120	34	25
		ROC	lb/day	844	156	240
			ton/yr	37	28	25
		CO	ton/yr	131	107	100
		PM_{10}	lb/day	8,871	3	80
			ton/yr	179	1	15
Ventura County APCD	All Project Sources	NO_x	lb/day	6,933	18	25
		ROC	lb/day	941	256	25
Monterey Bay Unified APCD	All Project Sources	NO_x	lb/day	1,761	33	150
		ROC	lb/day	184	9	150
	On-Site Sources Only	SO_x	lb/day	160	1	150
		CO	lb/day	1,934	129	550
		PM_{10}	lb/day	2,435	1	82
San Luis Obispo APCD	All Project Sources	NO_x	lb/day	1,776	33	25
			ton/yr	22	6	25
		ROC	lb/day	187	9	25
			ton/yr	2	2	25
		SO_x	lb/day	160	1	25
			ton/yr	3	0.3	25
		CO	lb/day	2,033	144	550
			ton/yr	26	26	25
		PM_{10}	lb/day	2,438	1	25
			ton/yr	23	0.1	25

Note: Exceedances of the significance criteria are shaded.

Ventura County APCD - According to the District's NSR rule, emission offsets are triggered after permitted source emissions exceed 0 lb/day for both ROC and NO_x. Therefore, offsets would be triggered for both ROC and NO_x at all prospect areas. As a result, ROC and NO_x 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, emissions of both ROC and NO_x exceed their respective significance thresholds. Therefore, ozone impacts would be significant. Other pollutants (SO_x, CO, and PM_{10}) 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, ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts would continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO_x and PM_{10} 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 240 lb/day or 25 ton/yr for NO_x or ROC. Based on the emission estimates for this alternative, NO_x 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_x 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_{10} include all sources except power plants.

During maximum development activity, emissions of ROC, NO_x, CO, and PM_{10} exceed their respective significance thresholds. SO_x has no significance criterion. Therefore, ozone impacts would be significant. For CO, PM_{10}, and SO_x, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, NO_x and ROC emissions exceed the daily threshold, CO emissions exceed the annual threshold, and PM_{10} emissions are less than their respective thresholds. Therefore, long-term ozone impacts would continue to be significant. Long-term PM_{10} impacts would be non-significant. Although no threshold exists for SO_x, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO_x 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. <u>Indirect Impacts</u>

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_x, CO, and PM_{10}) 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 is not consistent with the AQMP, then its cumulative ozone impacts would be significant.

4.3.2.5.4. Irreversible/Irretrievable Impacts

The proposed project would not produce any irreversible or irretrievable air quality impacts. The air quality setting of the project area would return to its pre-project conditions if the project were to cease operations.

4.3.2.5.5. Short Term/Long Term Tradeoffs

There would be no short term/long term tradeoffs associated with the proposed project. When the project ceases, the long-term emissions associated with the project would cease, and air quality would return to its pre-project state.

4.3.2.5.6. Mitigation Measures

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development would 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_x 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.

4.3.2.5.7. 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.

4.3.2.5.8. 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.

4.3.2.6. Impacts of Alternative 3: Meet Forest Plan Direction

4.3.2.6.1. Direct Impacts

To compare project emissions to the significance thresholds established by each air district, emissions from all prospect areas within each district were summed. This method results in an extremely conservative estimate for peak daily emissions, as it assumes that peak emissions from all prospect areas occur on the same day. In addition, prospect areas that span two different air districts are included in the summed emissions for both districts.

Table 4-4 lists the resulting 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_x. Based on the emission estimates, emission offsets would probably not be triggered for either ROC of NO_x. 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 pollutants exceed the daily significance threshold, and CO emissions exceed the annual threshold as well. Therefore, ozone impacts would be significant, and impacts of all other pollutants would require project-level analysis for a definitive assessment.

After project buildout, NO_x emissions exceed the daily threshold and CO emissions exceed the annual threshold. Therefore, long-term ozone impacts would 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 0 lb/day for both ROC and NO_x. Therefore, offsets would be triggered for both ROC and NO_x at all prospect areas. As a result, ROC and NO_x 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, emissions of both ROC and NO_x exceed their respective significance thresholds. Therefore, ozone impacts would be significant. Other pollutants (SO_x, CO, and PM_{10}) 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 4-4: COMPARISON OF PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTERNATIVE 3

Air District	Emission Sources	Pollutant	Emission Units	Short Term Project Emissions	Long Term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO_x	lb/day	3,805	15	25
		ROC	lb/day	447	21	25
	All Project Sources	NO_x	lb/day	4,584	132	240
			ton/yr	73	24	25
		ROC	lb/day	610	130	240
			ton/yr	28	24	25
		CO	ton/yr	133	105	100
		PM_{10}	lb/day	6,220	2	80
			ton/yr	112	0.4	15
Ventura County APCD	All Project Sources	NO_x	lb/day	4,858	15	25
		ROC	lb/day	600	111	25
Monterey Bay Unified APCD	All Project Sources	NO_x	lb/day	n/a	n/a	150
		ROC	lb/day	n/a	n/a	150
	On-Site Sources Only	SO_x	lb/day	n/a	n/a	150
		CO	lb/day	n/a	n/a	550
		PM_{10}	lb/day	n/a	n/a	82
San Luis Obispo APCD	All Project Sources	NO_x	lb/day	1,011	33	25
			ton/yr	10	6	25
		ROC	lb/day	112	9	25
			ton/yr	2	2	25
		SO_x	lb/day	112	1	25
			ton/yr	1	0.3	25
		CO	lb/day	1,314	144	550
			ton/yr	29	26	25
		PM_{10}	lb/day	1,378	1	25
			ton/yr	11	0.1	25

Note: Exceedances of the significance criteria are shaded.

After project buildout, ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts would continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO_x and PM_{10} 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 240 lb/day or 25 ton/yr for NO_x or ROC. Based on the emission estimates for this alternative, NO_x 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_x 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_{10} include all sources except power plants.

During maximum development activity, emissions of ROC, NO_x, CO, and PM_{10} exceed their respective significance thresholds. SO_x have no significance criterion. Therefore, ozone impacts would be significant. For CO, PM_{10}, and SO_x, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, CO emissions exceed the annual threshold; NO_x, ROC, and PM_{10} emissions are less than their respective thresholds. Therefore, long-term ozone and PM_{10} impacts would be non-significant. Although no threshold exists for SO_x, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO_x 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_x, CO, and PM_{10}) 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 is not consistent with the AQMP, then its cumulative ozone impacts would be significant.

Irreversible/Irretrievable Impacts

The proposed project would not produce any irreversible or irretrievable air quality impacts. The air quality setting of the project area would return to its pre-project conditions if the project were to cease operations.

4.3.2.6.4. Short Term/Long Term Tradeoffs

There would be no short term/long term tradeoffs associated with the proposed project. The long-term emissions associated with the project would cease, and air quality would return to its pre-project state, when the project ceases.

4.3.2.6.5. Mitigation Measures

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development would 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_x 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.

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

To compare project emissions to the significance thresholds established by each air district, emissions from all prospect areas within each district were summed. This method results in an extremely conservative estimate for peak daily emissions, as it assumes that peak emissions from all prospect areas occur on the same day. In addition, prospect areas that span two different air districts are included in the summed emissions for both districts.

Table 4-5 lists the resulting 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_x. Based on the emission estimates, emission offsets would probably not be triggered for either ROC of NO_x. 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, emissions of all pollutants exceed the daily significance threshold, and CO emissions exceed the annual threshold as well. Therefore, ozone impacts would be significant, and impacts of all other pollutants would require project-level analysis for a definitive assessment.

After project buildout, NO_x emissions exceed the daily threshold and CO emissions exceed the annual threshold. Therefore, long-term ozone impacts would 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 0 lb/day for both ROC and NO_x. Therefore, offsets would be triggered for both ROC and NO_x at all prospect areas. As a result, ROC and NO_x 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, emissions of both ROC and NO_x exceed their respective significance thresholds. Therefore, ozone impacts would be significant. Other pollutants (SO_x, CO, and PM_{10}) 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, ROC emissions exceed the daily threshold. Therefore, long-term ozone impacts would continue to be significant. Although no thresholds exist for the other pollutants, emissions of SO_x and PM_{10} 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 240 lb/day or 25 ton/yr for NO_x or ROC. Based on the emission estimates for this alternative, NO_x 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_x 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_{10} include all sources except power plants.

During maximum development activity, emissions of ROC, NO_x, CO, and PM_{10} exceed their respective significance thresholds. SO_x has no significance criterion. Therefore, ozone impacts would be significant. For CO, PM_{10}, and SO_x, future project-level analysis will be necessary to compare concentrations of these pollutants to the ambient air quality standards.

After project buildout, CO emissions exceed the annual threshold; NO_x, ROC, and PM_{10} emissions are less than their respective thresholds. Therefore, long-term ozone and PM_{10} impacts would be non-significant. Although no threshold exists for SO_x, emissions after project buildout are relatively small. Therefore, it is unlikely that long-term impacts of SO_x 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. <u>Indirect Impacts</u>

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. <u>Cumulative Impacts</u>

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_x, CO, and PM_{10}) 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 is not consistent with the AQMP, then its cumulative ozone impacts would be significant.

4.3.2.7.4. Irreversible/Irretrievable Impacts

The proposed project would not produce any irreversible or irretrievable air quality impacts. The air quality setting of the project area would return to its pre-project conditions if the project were to cease operations.

TABLE 4-5: COMPARISON OF PROJECT EMISSIONS TO SIGNIFICANCE CRITERIA FOR ALTERNATIVE 4

Air District	Emission Sources	Pollutant	Emission Units	Short Term Project Emissions	Long Term Project Emissions	Significance Criterion
Santa Barbara County APCD	Motor Vehicles Only	NO_x	lb/day	3,505	15	25
		ROC	lb/day	406	21	25
	All Project Sources	NO_x	lb/day	4,284	132	240
			ton/yr	65	24	25
		ROC	lb/day	561	111	240
			ton/yr	27	20	25
		CO	ton/yr	133	105	100
		PM_{10}	lb/day	5,611	2	80
			ton/yr	93	0.4	15
Ventura County APCD	All Project Sources	NO_x	lb/day	4,858	15	25
		ROC	lb/day	600	99	25
Monterey Bay Unified APCD	All Project Sources	NO_x	lb/day	n/a	n/a	150
		ROC	lb/day	n/a	n/a	150
	On-Site Sources Only	SO_x	lb/day	n/a	n/a	150
		CO	lb/day	n/a	n/a	550
		PM_{10}	lb/day	n/a	n/a	82
San Luis Obispo APCD	All Project Sources	NO_x	lb/day	1,011	33	25
			ton/yr	10	6	25
		ROC	lb/day	112	9	25
			ton/yr	2	2	25
		SO_x	lb/day	112	1	25
			ton/yr	1	0.3	25
		CO	lb/day	1,314	144	550
			ton/yr	29	26	25
		PM_{10}	lb/day	1,378	1	25
			ton/yr	11	0.1	25

Note: Exceedances of the significance criteria are shaded.

4.3.2.7.5. Short Term/Long Term Tradeoffs

There would be no short term/long term tradeoffs associated with the proposed project. The long-term emissions associated with the project would cease, and air quality would return to its pre-project state, when the project ceases.

4.3.2.7.6. Mitigation Measures

With mitigation identified in Section 4.3.2.3, the short-term ozone impacts during project development would 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_x 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.

4.3.2.7.7. 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.

4.3.2.7.8. 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. 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 resource in the La Brea Canyon HOGPA not being feasible to recover under Alternative 4a.

There is also a 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 5 wells in Alternative 4a. Likewise the number of pads is reduced from 4 to 1, the two miles of roads on LPNF is eliminated, and the miles of pipeline is reduced from 2 to 1. 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 reduction of wells, pads, roads and pipelines occurring on LPNF is expected to still occur, but on private lands adjacent to the Forest.

The reduction in of oil projected to be extracted from 17.4 million barrels in Alternative 4 to 17.3 million barrels in Alternative 4a is only ½ of 1%. This is less than uncertainty in the projections themselves. Many of 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 Alternative 4.

4.3.2.9. Impacts of Alternative 5: Preferred Composite

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

4.3.2.10. Impacts of Alternative 5a: Alternative 5 with Roadless Area Emphasis

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 and lands that cannot be accessed by directional drilling are not to be leased (NL).

The major difference between Alternative 4 and 5 is the use of Alternative 3 stipulations (except biological) in HOGPA's in Alternative 5 and inaccessible lands not leased in Alternative 5. However, this difference is almost totally negated in comparing Alternative 4a and Alternative 5a. The reason for this is that both alternatives 4a and 5a allocate the IRA's to NSO. The result is essentially all the lands that had different stipulations comparing Alternative 4 to Alternative 5 are allocated to NSO or No Lease (NL) in both alternative 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. 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, 5 and 5a are projected to be essentially the same.

Table 4-6 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. The precise year associated with these impacts varies by alternative and pollutant; it ranges from 2002 to 2007. This table 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 4-7 shows the air quality impacts after project buildout, (2007). 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.

TABLE 4-6: DIRECT AIR QUALITY IMPACTS FOR THE YEAR OF MAXIMUM ACTIVITY (WITHOUT MITIGATION)

Air District	Significant Impacts	Non-Significant Impacts	Project-Level Analysis Necessary for Determination
Alternative 1 - No Action, No New Leases			
Ventura County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors; Local CO concentrations	Local SO_x, PM_{10}, and $PM_{2.5}$ 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
Alternative 2 - Emphasize Oil and Gas Development			
Ventura County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Monterey Bay Unified APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
San Luis Obispo APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Alternative 3 - Meet Forest Plan Direction			
Ventura County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ 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_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Alternative 4 - Emphasize Surface Resources (also Alternatives 4a, 5, and 5a)			
Ventura County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ 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_x and ROC)	Off-site odors	Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations; AQMP consistency

TABLE 4-7: SUMMARY OF DIRECT AIR QUALITY IMPACTS AFTER PROJECT BUILDOUT (WITHOUT MITIGATION)

Air District	Significant Impacts	Non-Significant Impacts	Project-Level Analysis Necessary for Determination
Alternative 1 - No Action, No New Leases			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO_x, PM_{10}, and $PM_{2.5}$ concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO_x and ROC); Local CO, SO_x, PM_{10}, and $PM_{2.5}$ 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
Alternative 2 - Emphasize Oil and Gas Development			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO_x, PM_{10}, and $PM_{2.5}$ concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	Regional ozone levels (NO_x and ROC)	Off-site odors; Local SO_x, PM_{10}, and $PM_{2.5}$ concentrations	Local CO concentrations; AQMP consistency
Monterey Bay Unified APCD	None	Off-site odors; Regional ozone levels (NO_x and ROC); Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations	AQMP consistency
San Luis Obispo APCD	Regional ozone levels (NO_x only)	Off-site odors; Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations	AQMP consistency
Alternative 3 - Meet Forest Plan Direction			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO_x, PM_{10}, and $PM_{2.5}$ concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO_x and ROC); Local SO_x, PM_{10}, and $PM_{2.5}$ 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_x only)	Off-site odors; Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations	AQMP consistency
Alternative 4 - Emphasize Surface Resources (also Alternatives 4a, 5, and 5a)			
Ventura County APCD	Regional ozone levels (ROC only)	Off-site odors; Local SO_x, PM_{10}, and $PM_{2.5}$ concentrations	Local CO concentrations; AQMP consistency
Santa Barbara County APCD	None	Off-site odors; Regional ozone levels (NO_x and ROC); Local SO_x, PM_{10}, and $PM_{2.5}$ 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_x only)	Off-site odors; Local CO, SO_x, PM_{10}, and $PM_{2.5}$ concentrations	AQMP consistency

4.3.3. Watershed Resources

4.3.3.1. Introduction

This section provides a description of the anticipated effects to the watershed resources (water, soils, riparian areas, wetlands, and floodplains) from implementing each leasing alternative.

A Management Agreement between the California State Water Resources Control Board and Forest Service recognizes that the Best Management Practices (BMPs) (FS 1979) are appropriate for controlling non-point source pollution on U.S. Forest Service-administered lands. Use of the BMPs will mitigate potential impacts to a level less than significant except for cumulative watershed impacts. The BMPs are listed in Appendix I of the Forest Plan, Appendix Table III 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. Consequently, BMPs apply to all alternatives and will mitigate non-cumulative water pollution below the significance level. However, there still can be cumulative watershed effects that may be significant. For this reason the watershed analysis focused on cumulative watershed effects (CWE) as described below.

4.3.3.1.1. Adjusting Watershed Sensitivity Index Due to No Surface Occupancy Stipulations and the Resulting CWE Risk Rating

Watershed sensitivity is governed by soil erosion, land instability, steepness of slope, and drainage into a municipal water supply. When a "no surface occupancy" stipulation (NSO) is applied, it reduces the area subject to surface disturbance by oil and gas development. For this analysis, watershed sensitivity ratings for sub-basins were reduced equal to the NSO acreage that would be removed from disturbance.

4.3.3.1.2. Evaluating the Effects of Wilderness on CWE Risk Ratings

In essence, Wilderness designation was considered to have the same effect on CWE risk ratings as does the NSO stipulations. Since designated Wilderness areas are removed from mineral entry they cannot be leased for oil and gas development.

4.3.3.1.3. Steps in Evaluating CWE Risk

The steps used in evaluating CWE risk in this study are:

1. *Make a Forest wide sub-basin evaluation of watershed sensitivity, current percent ERA and current CWE risk conditions.(see Chapter 3)*
2. *For ease of comparison of alternatives, group sub-basins by areas of high potential for oil and gas development. Analyze the impacts of projected disturbance on the sub-basins (Alternatives 1 and 2). Sub-basins with high and very high risk ratings are considered to have potential for adverse CWE.*
3. *Determine the effects of NSO on watershed sensitivity ratings and analyze the impacts of projected disturbance on sub-basins (Alternatives 3 and 4). Sub-basins with high and very high-risk ratings are considered to have potential for adverse CWE.*

4. *Determine if sub-basins with high and very high-risk ratings have portions of their acreage in Wilderness. If so, adjust the CWE rating to reflect the amount that the risk level would be reduced.*
5. *In the unlikely event that an applicant proposes activities outside of the high oil and gas potential areas, follow the guidance below for limiting cumulative watershed effects.*

4.3.3.1.4. Limiting Cumulative Watershed Effects

Limiting the amount of disturbance in a sub-basin can control adverse CWE. In the event that the projected acres of oil and gas development causes a high or very high risk for adverse CWE, the number of acres that can be allowed before adverse CWE is expected to occur can be estimated by:

1. *Determining the watershed sensitivity rating for the sub-basin (from Appendix Table I of Watershed Background Report);*
2. *Determining the percent ERA (Equivalent Roaded Area) for the respective watershed sensitivity rating necessary to hold the threshold of concern below a high risk for CWE rating (see Table 4-8). For example, if the watershed sensitivity rating for the sub-basin is high, a 6.0 percent ERA would hold the risk of adverse CWE below a high and very high rating;*
3. Multiplying the percent ERA times the acres of potential for development. Add the amount to the existing percent ERA and determine the acres that can be disturbed without concern for adverse CWE.

TABLE 4-8: PERCENT ERA NEEDED TO HOLD CWE RISK LEVEL BELOW HIGH RISK

WSI Rating	Percent ERA
Very High	3.0
High	6.0
Moderate	9.0
Low	12.0
Very Low	15.0

This process can be use in any sub-basin in the Forest that was not included in the high oil and gas potential areas. Thus, impacts can be estimated throughout the Forest.

4.3.3.2. Water Resources

This section focuses on potential impacts to surface and groundwater quality, and uses the CWE analysis as an index of impact that would be potentially caused by oil and gas exploration and/or developments.

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; and*
  - *oil/produced water transportation facilities (trucks, pipelines);*
- water consumption 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.

The potential impacts to ground water include:

- transfer of drilling fluids and saline production water to fresh water aquifers if wells are not properly constructed;
- 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/produced water transportation facilities (trucks, pipelines);*
- water consumption for road watering and drilling fluids 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.

4.3.3.2.1. Mitigation Measures

The road construction BMPs (see Appendix E) are applicable to controlling non-point source water pollution related to oil and gas development**.** BMP 2.21 addresses potential impacts to groundwater and surface water quantity. Use of the BMPs will mitigate potential impacts to a level less than significant except for cumulative watershed impacts.

4.3.3.2.2. Criteria for Significant Impacts to Water

We have used the Cumulative Watershed Effects (CWE) analysis to integrate the possible effects of oil and gas leasing, exploration, and development activities. Significant impacts are considered to occur when the disturbance results in high or very high risk for adverse CWE.

4.3.3.3. Soils/Geomorphology

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 leasing and subsequent exploration and development within the project area. The impact analysis focuses on areas of erosive soils,

unstable soils and steep slopes. The degree of potential impacts to soils from oil and gas development would depend on the types and locations of soil disturbances associated with construction of facilities.

Three major types of activities are associated with well development: gathering system pipelines, well pads, and roads. Construction would result in direct removal of soil, clearing of vegetation that would cause an increase in erosion by wind and water, and reduced soil productivity and stability as a result of vegetation removal. There would 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, and activation or reactivation of unstable areas. Some of these disturbances would potentially increase surface water runoff, accelerate erosion losses, interfere with drainage systems, and increase landslide hazards.

4.3.3.3.1. Mitigation Measures

BMPs are designed to protect soil productivity and water quality from loss due to erosion and mass wasting. The BMPs applicable to oil and gas development are listed in Appendix E.

4.3.3.3.2. Criteria for Significance of Impacts to Soils

Impacts to soils as a result of oil and gas leasing, exploration, and development activities, using the Cumulative Watershed Effects analysis, are considered to be significant if the disturbance results in high or very high risk for CWE.

4.3.3.4. Riparian/Wetland/Floodplain Areas

Impacts to riparian and wetland areas can be significant if changes in wetland 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 normal functional value of riparian or wetland areas is reduced. The CWE analysis is used as an index of impact of oil and gas development.

4.3.3.4.1. Mitigation Measures

BMP mitigation measures are designed to protect soil productivity and water quality loss due to erosion and mass wasting. Such mitigation measures include BMP numbers 1.6, 1.8, 2.1-2.19, 2.21-2.24, 2.26, 3.2, 5.3-5.4, and 7.1-7.4. These measures are identified and briefly described in Appendix E of this report. Use of BMPs applies to all alternatives. Standard Lease Terms allow FS to require facilities to be moved up to 200 meters. This provision will be utilized to prevent surface occupancy 200 meters either side of all streams. It will also be utilized to allow no surface occupancy within riparian, wetlands, and floodplains that are less than 400 meters wide.

4.3.3.4.2. Criteria for Significance of Impacts to Wetlands/Riparian/Floodplain

The Cumulative Watershed Effects analysis is used to evaluate these impacts, which are considered significant if the disturbance results in high or very high risk for CWE.

4.3.3.5. Impacts Common to All Alternatives

4.3.3.5.1. Water

All the alternatives, including Alternative 1: No Action/No New Leasing, could involve operation of wells and fields. Potential impacts from long-term operation are primarily the potential for spills and releases, increased erosion, and stream sedimentation. There also may be short-term high water demands, increased short-term erosion and stream sedimentation due to new construction. Application of Best Management Practices will reduce effects below that which would impact the beneficial uses of the water.

All of the alternatives involve the potential for new construction of exploratory and development wells. Potential 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.

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 standard mitigation measures and following the prescribed minimum standards required in BLM Onshore Order No. 2 for items such as installing and cementing casing through all usable quality water aquifers and into impermeable strata, should adequately protect the ground water resource for all the alternative developments. BLM Onshore Order No. 7 regulates the disposal of produced water. The potential for negative impacts on groundwater is less for alternatives with less foreseeable drilling activity (Alternatives 1, 3, 4, 4a, 5 and 5a).

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.

4.3.3.5.2. Soils

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 at well sites. Should a discovery occur, 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 BMPs are followed and where reclamation, revegetation, and erosion control measures are implemented and 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 subsoils to the surface, resulting in revegetation and rehabilitation difficulties. If routes are placed on gentle slopes, the amount of cuts and fills would be 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 immediately would reduce the amount of erosion. Under most situations, accelerated soil erosion and productivity losses would occur until pipeline rights-of-way are stabilized (two to five years). This is considered a short-term impact.

Locating well pads on more gently sloping surfaces greatly reduces the amount of cuts and fills and would result in less erosion. Where construction on steeper slopes is necessary, cuts and fills would be required and impacts to soils would increase. Side hill cuts and fills on slopes greater than 50 percent would require extensive sidewall cuts that would cause slope instability and would result in large volumes of soil and rock debris being used as fill or being deposited onto otherwise undisturbed areas. In cut areas, replacement of sidecast material, regrading and revegetation is difficult. Successful application of intensive revegetation and mechanical erosion-control techniques would stabilize such areas within five years; however, steep slopes such as these should be avoided.

Construction of new access roads has the greatest potential for adverse impacts on soils. Increased sediment entering stream channels originates from Forest roads. Water quality is affected by the number and location of roads, as well as by road construction and maintenance. 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 would become accessible to off-road vehicles and their land disturbance;*
2) *unsurfaced access roads may rut in wet weather or where constructed in wet areas; and*
3) *construction and maintenance activities reduce infiltration rates on road surfaces, disrupt natural drainage by concentrating subsurface and overland flow, and channel runoff resulting in gully erosion.*

Soil losses can be reduced or minimized through the application of Forest Service Best Management Practices on a site-specific basis. Examples of such practices include use of erosion curtains to protect drainages, surfacing roads, water bars and check dams to control runoff, stockpiling of topsoil for reclamation and revegetation, and use of rip-rap 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.

4.3.3.5.3. Riparian

Principal direct effects to riparian 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 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 and wetland 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 and wetland areas) in the event that such sites are identified after lease areas have been designated. The discretional authority to relocate any proposed activity 200 meters effectively provides for a 400-meter wide corridor centered on riparian strips.

Mitigation measures to reduce impacts to riparian and wetland areas include: site and routing selection to avoid riparian and wetland areas; check dams and siltation fences and other Best Management Practices 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 Clear 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. Development of oil and gas wells in riparian areas would cause significant effects to the water quality and aquatic habitat. With adherence to Forest Plan standards and guidelines, no significant adverse effects to wetlands and floodplains are anticipated for any alternative.

4.3.3.5.4. 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 will prepare a Burned Area Emergency Report, which will develop rehabilitation measures to speed up recovery of hydrologic function and identify the manner and duration of restrictions on lessee activities. In addition, to speed up recovery of hydrologic function, a long-term recovery plan for watershed within the lease area may be developed.

4.3.3.5.5. Other Cumulative Impacts

As a result of past activities 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. Present and future activities can add to these previous impacts if not sufficiently mitigated.

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.

Foreseeable off-Forest development which would result in land disturbance downstream from the Forest would not add impacts to up-stream conditions in the sub-basins.

Oil and gas or other development activities on private lands upstream from Forest lands could result in significant cumulative impacts. Such developments will require environmental analysis and documentation under CEQA if County permits are 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 possible future on-shore and offshore oil and gas development.

Regarding possible future 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, no 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 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 following sections 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 be not be cumulative on a specific geographic area basis, although 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 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.

4.3.3.6. 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 4-9. Sub-basin locations and geographic extent are shown in the Watershed Stipulations map in the accompanying map packet.

Mitigation Measures and Stipulations

Application of Best Management Practices (BMPs) will be required as implementation of the Clean Water Act. An Information Notice that will be made a part of the lease will make lessees aware of this requirement.

TABLE 4-9: ALTERNATIVE 1 CONDITIONS OF SUB-BASINS - BASINS WITH EXISTING LEASES BY HOGPA

High Oil and Gas Potential Area	Projected Disturbance Short/Long Term (acres)	Sub-basins in Area with Leases	Watershed Sensitivity	Short Term Risk for Adverse CWE	Long Term Risk for Adverse CWE	Sub-basins With Concern for Risk of CWE
Piedra Blanca	0.0	None				
San Cayetano*	0.0	None				
Sespe*	0.0	None				
Rincon Creek	0.0	None				
South Cuyama*	8.3/7.3	11	11-Very Low	11- Low – Low**	11- Low - Low	None
La Brea Cyn.	0.0	None				
Figueroa Mtn.	0.0	None				
Lopez Canyon	0.0	None				
Monroe Swell	0.0	None				

* *Contains existing leased lands*

** *Range in CWE: if all the disturbance is prorated between all watersheds within a development area: compared to if all disturbance were located in one sub-basin.*

4.3.3.6.1. 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.*

The BMPs are incorporated into existing lease terms through Information Notices.

4.3.3.6.2. 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 Table 4-9.

4.3.3.6.3. 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. Summary information is provided in Table 4-9. The risk of negative CWE has been provided as a range. 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 (see section 3.1.2.6.3). Detailed information by sub-basin is provided in Watershed Resources Background Report.

South Cuyama Oil and Gas Potential Area

This oil and gas potential area has six sub-basins with existing leases projected to have potential oil and gas development in the future. All sub-basins have very low watershed sensitivity ratings. Projected development is small (8.3 acres short-term and 7.3 acres long-term disturbance) and no adverse CWE impacts are expected from short-term or long-term disturbance even if all the development were to occur in only one of the sub-basins.

Cumulative Impacts

BMP mitigation measures applied to on-Forest oil and gas activities will generally prevent cumulative contributions to impacts downstream off-Forest areas that might otherwise result in significant cumulative impacts when considered with off-Forest projects. The only exception anticipated is the one previously noted above under cumulative impacts common to all alternatives regarding Santa Barbara County ACD policy implementation in the Cuyama Valley.

Irreversible/Irretrievable Impacts

There are no irreversible or irretrievable watershed impacts expected to occur in the sub-basins from the projected disturbances under the existing leases.

Short Term/Long Term Tradeoffs

Construction of roads, drilling pads and collection/distribution lines is only projected to disturb 8.3 acres in the short term and 7.3 acres in the long term. The entire projected disturbance is projected to occur in the South Cuyama HOGPA. This will result in a loss of growing area for vegetation due to clearing, grading and future maintenance of the transportation system. Existing roads and pads will be utilized to the fullest extent. This loss is not expected to have a significant effect on the overall soil productivity and water production of the sub-basins. The difference of 1 acre between the short term and long term disturbance represents the disturbed area that would be revegetated.

Significant Unavoidable Impacts

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

Forest Plan Consistency Discussion

Alternative 1 is consistent with the Forest Plan watershed direction.

4.3.3.7. 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. Road construction and land 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. NSO, as is applied in Alternatives 3 and 4) or more intensive construction, engineering, erosion control, and reclamation measures in order to minimize impacts on the soil resource.

4.3.3.7.1. Mitigation Measures and Stipulations

Best Management Practices would be applied to all leasing alternatives. No additional lease stipulation measures would be added to BLM's Standard Lease Terms for Alternative 2. Mitigation under BLM's 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.

4.3.3.7.2. Direct Impacts to Watershed Resources

Impacts to water, soils, and riparian resources as discussed in sections 4.3.3.2, 4..3.3.3 and 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 packet displays the location of sensitive watershed areas with very high erosion hazards, steep slopes, unstable landscapes and the Casitas Reservoir Watershed.

4.3.3.7.3. 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.

4.3.3.7.4. 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. The results of the analysis are provided in Table 4-10, for the high oil and gas potential areas. Overall, there is only a small increase in the percent ERA when the projected oil and gas development is pro-rated equally to each of the sub-basins, compared to the existing condition (Situation 1). However, three sub-basins that are located in the San Cayetano and Sespe areas could have adverse CWE if all the oil and gas development projected to occur were to occur in one sub-basin (Situation 2). Table 4.10 provides a summary of risk by development area, and Appendix Table VI of the Watershed Background Report gives the range of risk of adverse CWE occurring in each sub-basin. The low end is derived from Situation 1, and the high end of the range is from Situation 2.

Following are discussions of the results, by high oil and gas potential area:

4.3.3.7.5. Impacts by HOGPA/non-HOGPA Areas

Piedra Blanca Area

There are nine sub-basins in the Piedra Blanca HOGPA and the projected area of disturbance is 22.0 acres short term and l2.0 long term. All sub-basins have a low risk in their current condition, when the oil and gas development activities were prorated between sub-basins, and if all development were to be concentrated in only one sub-basin. Thus, no short or long term adverse CWE impacts are expected in this development area.

Rincon Creek Area

Eight sub-basins drain the Rincon Creek HOGPA and the area of projected disturbance is 6.0 acres short term and 3.0 acres long term. All sub-basins are in the low risk category for adverse CWE, before and after development. No sub-basins are expected to have short-term or long-term adverse CWE from oil and gas development.

San Cayetano Area

There are 22 sub-basins that drain the San Cayetano HOGPA, which has 38.4 acres short term and 16.0 acres long term projected disturbance from oil and gas development. Twenty-one sub-basins have low risk ratings in their current and developed condition. From short-term disturbance, sub-basin 702.04 has a high CWE risk rating (moderate risk for long term development) if all the development activities were to be concentrated in this sub-basin. It has very high watershed sensitivity characteristics with a relatively small watershed in comparison with the amount of disturbance that is projected for Alternative 2. Thus, sub-basin 702.04 could incur significant adverse CWE impacts from short-term oil and gas development projected for this alternative. If so, the drainage downstream from 702.04 could also be significantly affected as well. This could include approximately three miles of Pine Canyon Creek (ending at its confluence with Sespe Creek). Depending on the magnitude of development-specific impacts, Sespe Creek could also be significantly affected, along the six miles from Pine Canyon Creek to the Santa Clara River.

Sespe Area

There are 18 sub-basins that drain the Sespe HOGPA, which has 35.2 acres short term and 12.1 acres long term of projected disturbance from potential oil and gas development. Seventeen sub-basins have low to moderate CWE risk ratings in the current condition and if development were pro-rated throughout the sub-basins. Two sub-basins, 701.48 and 705.02, have a high or very high risk rating, from short-term disturbance, if all development activities were in one basin. In addition sub-basin 701.48 has a very high risk for adverse CWE from long-term disturbance if all development were in one basin. These sub-basins have moderate to very high watershed sensitivity characteristics with relatively small watersheds in comparison with the amount of disturbance that is projected for Alternative 2. Thus, sub-basin 701.48 could have significant adverse CWE impacts from short and long term oil and gas development projected for this alternative. Sub-basin 705.02 could have significant adverse effects during short-term development. Drainages downstream from these sub-basins could be affected as well. Approximately 0.8 miles of Coldwater Canyon Creek is downstream from sub-basin 701.48, to its confluence with Sespe Creek. Sespe Creek flows for approximately six miles from Coldwater Canyon to the Santa Clara River. Oil and gas development in the part of sub-basin 705.02 considered for lease could affect two miles of unnamed drainages west of Arundell Peak, and up to 8 miles of Hopper Canyon Creek, from its upper reaches to the creek's confluence with the Santa Clara River.

Lopez Canyon Area

Four sub-basins drain the Lopez Canyon HOGPA, which has 6.1 acres short term and 3.0 acres long term projected disturbance. All sub-basins have low short-term and long-term risk for adverse CWE if all activities were concentrated in that watershed when the entire sub-basin acreage is considered in the CWE analysis. No sub-basins are expected to have short or long term adverse CWE from oil and gas development.

La Brea Canyon Area

There are five sub-basins that drain the La Brea Canyon HOGPA, which has 8.1 acres short term and 3.0 acres long term of projected disturbance from oil and gas development. All sub-basins have low risk ratings for adverse CWE in their current conditions and after projected oil and gas development. No sub-basins are expected to have short or long term adverse CWE from oil and gas development.

Figueroa Mountain Area

There are eleven sub-basins that drain the Figueroa Mountain HOGPA, which has 6.1 acres of projected disturbance from oil and gas development. All sub-basins have low risk ratings for adverse CWE in their current conditions and after projected oil and gas development. No sub-basins are expected to have adverse CWE from oil and gas development.

South Cuyama Area

There are 21 sub-basins that drain the South Cuyama HOGPA, which has 35.3 acres short term and 15.0 long term of projected disturbance from oil and gas development. All sub-basins have low risk ratings for adverse CWE in their current conditions and after projected oil and gas development. The majority of the sub-basins have very low watershed sensitivity and large areas of the sub-basins are open to management that dissipates the impacts of CWE, even if the oil and gas development activities were to be concentrated in one sub-basin. No sub-basins are expected to have short or long term adverse CWE from oil and gas development.

Monroe Swell Area

There are three sub-basins that drain the Monroe Swell HOGPA, which has 6.1 acres short term and 3.0 acres long term of projected disturbance from oil and gas development. All sub-basins have low risk rating for adverse CWE in their current conditions and after projected oil and gas development. No sub-basins are expected to have short or long term adverse CWE from oil and gas development.

Non-HOGPA

No sub-basins in the non-HOGPA area are expected to have short or long term adverse CWE from oil and gas development. The reason is simply that no oil and gas activities are projected there. While estimates of CWE are based on the RFD projections for the HOGPAs, the areas being considered for leasing include areas outside the HOGPAs as well. While the RFD doesn't consider these areas as reasonably foreseeable for oil and gas development activities, new discoveries can occur and technological advances can change prospect feasibility.

4.3.3.7.6. Summary of CWE Analysis

Three sub-basins have a high or very high risk for adverse CWE when the oil and gas development activities are concentrated in one of the sub-basins. Significant adverse CWE

impacts could occur in sub-basins 701.48, 705.02 in the Sespe area and 702.04 in the San Cayetano area due to oil and gas development associated with this alternative.

TABLE 4-10: ALTERNATIVE 2 CONDITIONS OF SUB-BASINS –RISK OF ADVERSE CWE BY HOGPA

Oil and Gas Develop-ment Area	Project Disturb-ance Short/Long Term (ac.)	No. of Sub-basins in Area	Watershed Sensitivity, No. of Sub-basins by Category	Short-Term Risk for Negative CWE Impacts, No. of Sub-basins	Long-Term Risk for Negative CWE Impacts, No. of Sub-basins	Sub-basins With Concern for Risk of CWE
Piedra Blanca	22.0/12.0	9	3-Very Low6-Moderate	9-Low to Low	9- Low to Low	None
Rincon Creek	6.0/3.0	8	1-Very Low2-Low 5-Moderate.	8-Low to Low	8-Low to Low	None
San Cayetano	38.4/16.0	22	9-Very Low 5- Low 6-Moderate 1-High 1-Very High	14-Low to Low 6-Low to Moderate 1-Low to High 1-Moderate to Moderate	18-Low to Low 3-Low to Mod. 0-Low to High 1-Mod. to Mod.	702.04
Sespe	35.2/12.1	18	3-Very Low 7-Low 6-Moderate 0-High 2-Very High	10-Low to Low 4-Low to Mod. 1-Low to High 1-Low to V. High	14-Low to Low 2-Low to Mod. 0-Low to High 1-Low to V. High	701.48 705.02
Lopez Canyon	6.1/3.0	4	3-Very Low 1-Low	4-Low to Low	4-Low to Low	None
La Brea Canyon	8.1/3.0	5	2-Very Low 3-Low	5-Low to Low	5-Low to Low	None
Figueroa Mountain	6.1/3.0	11	4-Very Low 3-Low 1-Mod. 0-High 3-Very High	10-Low to Low 1-Low to Moderate	10-Low to Low 1-Low to Moderate	None
South Cuyama	35.3/14.0	21	20-Very Low 1-Low	21 Low to Low	21 Low to Low	None
Monroe Swell	6.1/3.0	3	2-Very Low 1-Low	3-Low to Low	3 Low to Low	None

4.3.3.7.7. Cumulative Impacts

Drainages downstream from sub-basins 701.48, 702.04, and 705.02 could receive indirect impacts that could be compounded by off-Forest activities in the sub-basin watersheds.

4.3.3.7.8. Irreversible/Irretrievable Impacts

Irretrievable impacts that could occur in the sub-basins with high and very high risk of adverse CWE are: 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.

4.3.3.7.9. Short Term/Long Term 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 the transportation system. The difference of 93.2 acres between the short term and long term disturbance represents the disturbed area that would be restored/revegetated.

4.3.3.7.10. Significant Unavoidable Impacts

Three sub-basins have a high or very high risk for adverse CWE when the oil and gas development activities are concentrated in one of the sub-basins. Significant adverse CWE impacts could occur in sub-basins 701.48, 705.02 in the Sespe area and 702.04 in the San Cayetano area due to oil and gas development associated with this alternative.

4.3.3.7.11. 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 adverse cumulative watershed effects in three sub-basins if all oil and gas development in either Sespe or San Cayetano HOGPAs were to occur in one sub-basin.

4.3.3.8. Impacts of Alternative 3

In Alternative 3, the No Surface Occupancy (NSO) stipulation is the primary management direction from the Forest Plan (Section 3.5) that is applied and reduces impacts to watershed resources as compared to the impacts estimated for Alternative 2. Alternative 3 has less projected disturbance from oil and gas development than does Alternative 2 as a result of applying the NSO watershed stipulations and stipulations for other resources as well. Watershed sensitivity is governed by soil erosion, land instability, steepness of slope, and by drainage into a municipal water supply. When NSO is applied, it reduces the area of sensitive conditions open for oil and gas development. For this analysis, watershed sensitivity ratings for sub-basins were reduced equal to the NSO acreage that would prevent sensitive watershed from disturbance. The NSO stipulations relative to watershed protection are shown in Table 4-11. Table 4-12 displays the results of applying NSO stipulations to sub-basin watershed sensitivity ratings. The Watershed Stipulations map in the map packet show the locations where each stipulation applies.

4.3.3.8.1. Mitigation Measures and Stipulations

Stipulations for Alternative 3 are given in Table 4-11. The *Watershed Stipulation* map in the map packet displays the geographic distribution of those NSO stipulations.

Four stipulations that are tied to Forest Plan direction deal with No Surface Occupancy (NSO). 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, which would result in 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.

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. Depending on the completeness of the WIN inventory, the lessee may be required to conduct the inventory. When the inventory is completed, WIN projects can be identified and a schedule for priority of work can be established with the lease.

4.3.3.8.2. Direct Impacts to Watershed Resources

There are no significant short or long-term adverse impacts expected from the activities projected to occur in Alternative 3. Adverse impacts would be controlled by:

1. The application of Best Management Practices, 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 reduce the risk of adverse impact to water quality and riparian/wetlands/ floodplain, or loss of soil productivity below the level of significance. These stipulations also protect watershed used for municipal water supplies.

4.3.3.8.3. 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 4-12.

4.3.3.8.4. 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. Acres of NSO, relative to watershed factors, its effect on reducing watershed sensitivity, and the range in risk of adverse

CWE is shown for Alternative 3 in Appendix Table VIII of the Watershed Background Report and in Table 4-12.

Table 4-13 presents a summary of sub-basin watershed conditions by high oil and gas potential area. Appendix VIII of the Watershed Background Report provides a detailed listing by sub-basins within the high oil and gas potential areas. The risk rating is provided as a range. The low end is derived from analysis of Situation 1 and the high end of the range is from Situation 2. If the risk of adverse CWE rating were high or very high, 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. For Alternatives 3 and 4, none of the sub-basins have a risk of Cumulative Watershed Effects higher than moderate. Specific discussions regarding each of the high-potential areas are provided below.

4.3.3.8.5. Impacts by HOGPA/non-HOGPA Areas

Piedra Blanca Area

There is no projected disturbance from oil and gas development in Alternative 3.

Rincon Creek Area

Eight sub-basins drain the Rincon Creek HOGPA and the short and long-term projected disturbance is 3.0 and 3.0 acres, respectively. All sub-basins are in the low risk category for short or long term adverse CWE, before and after development.

San Cayetano Area

There are 22 sub-basins that drain the San Cayetano HOGPA, which has 3.0 to 3.0 acres of projected short- and long-term disturbance from oil and gas development. Watershed sensitivity is very low in 19 sub-basins, low in one and moderate in two. All 22 sub-basins have low risk ratings in their current conditions and if oil and gas development is pro-rated through out the sub-basins. If all the development activities were to be concentrated in one sub-basin, three sub-basins would have a moderate risk rating for both short- and long-term impacts. None of the sub-basins are expected to result in concern for adverse CWE.

La Brea Canyon Area

There are five sub-basins that drain the La Brea Canyon HOGPA, which has 3.0 and 3.0 acres of projected short and long-term disturbance from oil and gas development. All sub-basins have very low watershed sensitivity ratings. All sub-basins have low risk ratings for adverse CWE in their current conditions, and after projected short- and long-term oil and gas development.

TABLE 4-11: 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	"... Needs (WIN) inventory. The Forest Service will conduct the inventory. When the inventory is completed, WIN projects can 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, 702.01, 702.02	Conduct WIN inventory and projects	

TABLE 4-12: CHANGE IN WATERSHED SENSITIVITY DUE TO NSO STIPULATIONS.

High Oil and Gas Potential Area	Number of Sub-basins in Area	Alternative 2 Watershed Sensitivity, No. of Sub-basins by Category	Alternatives 3 and 4 Reduced Watershed Sensitivity - No. of Sub-basins by Category
Piedra Blanca	9	3-Very Low; 0-Low; 6-Moderate	5-Very Low; 4- Low 0-Moderate
Rincon Creek	8	1-Very Low; 2- Low 5-Moderate	6-Very Low 2-Moderate
San Cayetano	23	9-Very Low; 5- Low 6-Moderate; 1-High 1-Very High	19-Very Low; 1- Low 2-Moderate; 0-High 0-Very High
Sespe	18	3-Very Low; 7-Low 6-Moderate; 0-High 2-Very High	10-Very Low; 6-Low 0-Moderate; 0-High 2-Very High
Lopez Canyon	4	3-Very Low; 1-Low	3-Very Low; 1-Low
La Brea Canyon	5	2-Very Low 3-Low	5 - Very Low 0-Low
Figueroa Mountain	11	4-Very Low 3-Low 1-Moderate 0-High 3-Very High	7 - Very Low 3 – Low 1 - Moderate 0-High 0-Very High
South Cuyama	21	20-Very Low 1-Low	21 - Very Low 0-Low
Monroe Swell	3	2-Very Low 1-Low	2-Very Low 1-Low

TABLE 4-13: CONDITIONS OF SUB-BASINS FOR ALTERNATIVES 3 AND 4 - RISK OF ADVERSE CWE BY HOGPA

Oil and Gas Development Area	Projected Disturb-ance (acres)	Number of Sub-basins in Area	Reduced Watershed Sensitivity, No. of Sub-basins by Category	Short Term Risk for Negative CWE Impacts, No. of Sub-basins	Long Term Risk for Negative CWE Impacts, No. of Sub-basins	Sub-basins With Concern for Risk of CWE
Piedra Blanca	0.0					
Rincon Creek	3.0/3.0	8	6-Very Low 2-Mod.	8-Low to Low	8-Low to Low	None
San Cayetano	3.0/3.0	23	19-Very Low 1- Low 2-Moderate	20-Low to Low2-Low to Moderate	20-Low to Low 2-Low to Mod.	None
Sespe	16.0/10.0	18	10-Very Low 6-Low 2-Very High	16-Low to Low 2-Low to Mod.	17-Low to Low 1-Low to Mod.	None
Lopez Canyon	0.0					
La Brea Cyn.	3.0/3.0	5	5 - Very Low	5-Low to Low	5-Low to Low	None
Figueroa Mtn.	0.0					
South Cuyama	21.5/14.0	21	21 - Very Low	21-Low to Low	21-Low to Low	None
Monroe Swell	0.0					

South Cuyama Area

There are 21 sub-basins that drain the South Cuyama HOGPA, which has 19.5 and 14.0 acres, respectively, of projected short-term and long-term disturbance from oil and gas development. All sub-basins have a very low watershed sensitivity rating. All sub-basins have low risk ratings for adverse CWE in their current conditions and after projected short-term and long-term oil and gas development. The majority of the sub-basins have very low watershed sensitivity and large areas of the sub-basins are open to management that disperses the impacts of adverse CWE.

Sespe Area

There are 18 sub-basins that drain the Sespe HOGPA, which has 14.5 short-term acres to long-term 8.5 acres of projected disturbance from potential oil and gas development. Ten sub-basins have a very low watershed sensitivity rating, six are low, and two are very high. All sub-basins have low CWE risk ratings in their current condition and when developments are pro-rated throughout the sub-basins. If development activities were to be concentrated in any one of the sub-basins, two sub-basins would have moderate ratings for short-term adverse CWE; and from long-term disturbance, one sub-basin has a moderate rating. None of the sub-basins are expected to have adverse CWE impacts.

Non-HOGPA Area

Descriptions of impacts and mitigation measures for the HOGPA areas are provided for all alternatives. The likelihood of discovery and development of oil and gas resources in the rest of the area being considered for lease is negligible. Since the possibility for discovery and development does exist, even though remote, the following recommendations should be applied to protect watershed resources outside of the high potential oil and gas areas.

Emphasis has been placed on preparing stipulations to be applied to areas sensitive to potential oil and gas activities to mitigate or eliminate effects. While estimates of CWE are based on the RFD projections for the HOGPAs, the areas being considered for leasing include areas outside the HOGPAs as well. While the RFD doesn't consider these areas as reasonably foreseeable for oil and gas development activities, wildcat oil strikes can occur and technological advances can change prospect feasibility. For those reasons lease stipulations based on environmental sensitivity are to be applied to all lands leased.

The sub-basins of concern are listed in Chapter 3. Nine sub-basins have high or very high watershed sensitivity, and 11 sub-basins are at moderate risk for negative CWE impacts in their current condition. None of the sub-basins are expected to experience CWE of immediate concern. If development is considered in the future, No Surface Occupancy (NSO) is a most effective means of controlling watershed resource impacts because it eliminates risk of sensitive lands being disturbed by oil and gas development. The Alternative 3 NSO stipulations and mitigation measures can be included as a part of BMPs in future leases. The analysis for Alternative 3 indicates that it is reasonable to expect that these mitigation measures and stipulations would prevent the occurrence of significant adverse impacts to watershed resources. In addition, the process for limiting disturbance from future development would provide added protection for watershed resources.

4.3.3.8.6. Summary

Because of the NSO stipulations, there is no significant risk of adverse CWE in any of the sub-basins when the oil and gas development activities are dispersed equally throughout watersheds, or concentrated in any one of the sub-basins.

4.3.3.8.7. Cumulative Impacts

Future Forest management activities under alternatives 3 or 4 are not expected to add land disturbance that would result in significant impacts to Forest watershed resources. Also, these activities would be conditioned with the BMPs that, when applied properly, have provided watershed protection in the past. Foreseeable non-Forest development land disturbance would generally not add impacts to up-stream conditions in the sub-basins. The majority of the sub-basins are geographically situated such that any off-Forest or private land development would not result in significant damage to upstream channel conditions. However, if substantial additional rural land development is allowed in Santa Barbara County under proposed new development regulations, this could result in some watershed impacts in the vicinity of some areas of high oil and gas potential (South Cuyama or La Brea Canyon). No oil and gas development would be allowed in the Figueroa Mountain area under Alternatives 3 or 4.

4.3.3.8.8. Irreversible/Irretrievable Impacts

No sub-basins with high and very high risk of adverse CWE will be affected by this alternative. Because of the NSO stipulations, there is no significant risk of adverse CWE in any of the sub-basins. There are no irreversible or irretrievable impacts.

4.3.3.8.9. Short Term/Long Term 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 the transportation system. This loss is not expected to have a significant effect on soil productivity and water production.

4.3.3.8.10. Significant Unavoidable Impacts

No significant unavoidable impacts are expected from the oil and gas development projected for Alternative 3.

4.3.3.8.11. Forest Plan Consistency Discussion

As a result of the mitigating stipulations Alternative 3 is consistent with Forest Plan direction.

4.3.3.9. Impacts of Alternative 4

Adding additional stipulations to Alternative 3 generates Alternative 4. No additional watershed stipulations are needed since the Alternative 3 leasing scenario is not projected to result in any

significant impacts to watershed resources. However, additional stipulations from other resources are applied. Since these stipulations further restrict surface use the impacts to watershed resources, already non-significant, would be further reduced in Alternative 4.

4.3.3.10. 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.

4.3.3.11. Impacts of Alternative 5

Within HOGPA's Alternative 5 utilizes Alternative 4 biological stipulations and Alternative 3 stipulations for all other resources. In the non-HOGPA area Alternative 5 utilizes Alternative 4 stipulations. All lease study land that would otherwise be under an NSO stipulation and cannot be accessed by directional drilling is not offered for lease. The result is Alternative 5 and Alternative 3 have the same projected reasonably foreseeable development scenarios. Thus the projected environmental consequences are also the same as Alternative 3.

4.3.3.12. 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 major differences between Alternative 4 and 5 are:

- *Alternative 3 stipulations (except biological) in HOGPA's in Alternative 5 and*
- *inaccessible lands not leased in Alternative 5.*

These two differences are almost totally negated in comparing Alternative 4a and Alternative 5a. The reason for this is that both Alternatives 4a and 5a allocate the IRA's to NSO. The result: essentially all the lands that had different stipulations comparing Alternative 4 to Alternative 5 are allocated to NSO or No Lease (NL) in both Alternative 4a and 5a. As a result, the RFD projections and projected watershed impacts for Alternatives 4a and 5a are the same.

Consequently, the projected watershed impacts for Alternatives 3, 4, 4a, 5 and 5a do not reach the threshold of significance.

4.4. BIOLOGICAL ENVIRONMENT

4.4.1. Introduction

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

4.4.2. Potential Impacts to Biological Resources

Further development of oil and gas resources on LPNF may result in impacts to biological resources. Impacts can result from human activity, noise, vehicular travel, vegetative removal/disturbance and pollution of air and water. Impacts over the long-term may be lessened by time, especially in areas where minimum maintenance and repair are necessary, although periodic visits to service and maintain equipment may result in temporary increases in impacts.

Effects to biological resources can be direct or indirect. Indirect impacts are impacts caused by actions that occur later in time or are farther removed in distance, but are still reasonably foreseeable.

4.4.2.1. Terrestrial Wildlife

Terrestrial wildlife is defined here as those species not requiring seasonal or permanent water for breeding and reproduction.

4.4.2.1.1. Direct Impacts

Direct biological impacts can result from vehicular collisions, bird collisions with objects while flying, or by entrapment. Migrating and resident birds are known to collide with structures that interfere with their flight paths. California condors (Jurek 1994, Olendorff and Lehman 1986, Rees 1989, Scott and Jurek 1985) eagles (Baglien 1975, Electric Power Research Institute 1982, Gretz 1981, Olendorff and Lehman 1986) and other raptors have been killed in collisions with power lines. Waterfowl (Anderson 1978, La Berg 1976, Malcom 1982) and neo-tropical migrants (Avery and Clement 1972, Boso 1965, Mosman 1975, Tordoff and Megel 1956, Vosberg 1966) are often killed when striking towers and tall structures at night and in heavy fog or other dense cloud situations.

Vehicular Collision
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. Construction and maintenance worker traffic on secondary

roads through suitable habitats normally results in variable and continuing wildlife collision mortality.

Collision with Facilities
Migrating and resident birds are known to collide with structures that interfere with their flight paths. California condors, eagles and other raptors have been killed in collisions with power lines. Waterfowl and neo-tropical migrants are often killed when striking towers and tall structures at night and in heavy fog or other dense cloud situations.

Entrapment
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.

4.4.2.1.2. Indirect Impacts

Indirect impacts can occur as a result of habitat loss, disturbance or pollution.

Habitat loss / Degradation
Access roads, drilling pads, pump sites, storage tanks, transmission lines and pipelines all reduce the habitat available for wildlife use. Certain of these activities can be mitigated through site restoration and the planting of vegetation preferable to wildlife species (forage and cover species).

Tables 4-14, 4-15, 4-17, 4-19, 4-20, 4-21, and 4-22 distribute the RFD estimated acres of maximum disturbance (before rehabilitation) in HOGPA's by vegetation type for the alternative leasing scenarios. The locations of future oil and gas activities within the HOGPA's 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 HOGPA's in the case of Alternative 1).

Disturbance
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
Pollution impacts can result from petroleum spills, dust and emissions into the air.

Petroleum: 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.

Dust: Dust from construction activities and vehicular traffic on unpaved roads coats adjacent vegetation, rendering it unpalatable or unavailable for wildlife use.

Emissions: Engine emissions from vehicles, generators, pumps, and other internal combustion engines release toxic gases into that air.

4.4.2.2. Aquatic Wildlife

Aquatic wildlife refers to those species requiring water for breeding and/or reproduction, exclusive of fish.

4.4.2.2.1. Direct Impacts

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 most all streams and riparian habitats on LPNF. During specific periods, aquatic species may migrate between upland habitats and ponds and streams for reproductive purposes. At this time they are vulnerable to mortality on roads. During dry summer or cold winter months, species may become dormant or hibernate in burrows. This renders them vulnerable to crushing by heavy equipment activity.

4.4.2.2.2. Indirect Impacts

Indirect impacts to aquatic wildlife can result from habitat loss or degradation, disturbance, or pollution.

Habitat loss / degradation
Aquatic habitats, including seasonal wetlands, are dynamic ecosystems annually prone to disturbance. Alteration of surface water run-off, interception of sub-surface sources, or depletion of ground water may result in losses of aquatic ecosystems. Siltation of water sources can fill in aquatic habitats, displacing species, covering hiding locations, and eliminating food sources.

Disturbance
Temporary or permanent crossing of wet areas and streams can disturb species and preclude use of certain areas. Long-term disturbance of species can result from noise, traffic, and other activities connected to oil and gas operations.

Pollution
Accidental spillage of petroleum products or other toxic materials can kill aquatic species (frogs, toads, salamanders). Eggs may be smothered or killed, and larvae and adults killed. 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 petroleum 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 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. Small amounts of toxic material can affect vulnerable species, particularly amphibians. Minor amounts of petroleum can suffocate aquatic insect larvae necessary as a food source for these species.

4.4.2.3. Fishery Resources

4.4.2.3.1. 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 will naturally flow to these drainages.

4.4.2.3.2. Indirect Impacts

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

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 allowed to be 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.

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.

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.

4.4.2.4. Vegetation

4.4.2.4.1. Direct Impacts

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. This could result in vehicular damage to unfenced 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. 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. The acreage and location of associated facilities (flowlines, distribution pipelines and treatment facilities) are unknown. Typically, 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).

4.4.2.4.2. 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 would 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.

4.4.2.4.3. 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 and highways*
- *development of pipelines and power-line corridors*

Future actions that may result in cumulative biological impacts, when combined with the alternative actions, include:

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 specific impacts, however, is not possible until specific management policies are proposed**.**

Wildfires

Nearly all Forest Management actions have biological implications. The effects of these actions can be positive, negative, or both, depending upon the species or species group. In addition to ESA protection of listed species, 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, 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.

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 which would identify rehabilitation measures to speed up recovery of habitat function 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.

Development on Private Lands

Oil and gas or other development activities on private lands in and near LPNF could result in significant cumulative impacts. However, such developments will require environmental analysis and documentation under 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.

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 Santa Barbara to San Luis Obispo that have previously been leased but have not yet been developed. Spills from offshore oil and gas operations have occurred in the past having adverse impacts on biological resources.

Regarding future possible onshore 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 biological impacts. While it is possible that such development might have biological impacts, without project details and specific environmental analysis any projection of their cumulative impacts would be speculative rather than reasonably foreseeable at this time. Santa Barbara County staff responding to the scoping query for this analysis 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.

Kern County in its Initial Study for the concrete batch plant, found no evidence that the project will result in a disturbance of any endangered species or their habitat. The site is located at least 25 miles from the closest HOGPA on LPNF. Thus, no cumulative biological impacts are expected as a result of the batch plant.

According to the project draft EIR, significant biological impacts associated with the proposed Nacimiento Water Project will occur to special status plant species located near Stenner and Chorro Creeks, and in Morro Bay Estuary. These species include Morro manzanita, Blochman's dudleya, California suaeda, San Luis mariposa lily, Brewer's spineflower, and San Luis Obispo sedge. Other plant resources affected in other areas include needlegrass grassland, serpentine bunchgrass, chaparral and coastal scrub vegetation. However, mitigation measures proposed (avoidance, revegetation, restoration, and possible off-site mitigation) will reduce the residual impact to non-significant. The project may also result in potentially significant residual impacts to red-legged frogs and southwestern pond turtles in Stenner and Chorro Creeks, if avoidance cannot be accomplished. Construction activities may also affect steelhead trout, arroyo chub, and tidewater goby if they are present in the Salinas River, and Santa Margarita, Stenner, San Luis Obispo, Los Osos and Chorro Creeks. Although mitigation measures are identified, residual impacts may be potentially significant if tidewater goby or steelhead trout are present along the Los Osos spur alignment. Finally, if releases from Lake Nacimiento are reduced as a result of drought, impacts to fishery resources in Nacimiento and Salinas rivers will be cumulative and may be significant, depending on the extent to which water conservation measures can be implemented. Reasonably foreseeable oil and gas development on LPNF is not expected to contribute to the cumulative effects of the Nacimento Water Project under any alternative.

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 residual environmental impacts to biological habitats, including riparian and wetland areas. Residual impacts are anticipated despite mitigation measures to site and design development areas that avoid these resources. These 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 HOGPAs in the Cuyama Valley, in lands west and southwest of Tepusquet Peak, and near Figueroa Mountain. While the County may decide to proceed with these changes on a pilot basis, for a limited time and in limited locations, it is possible that these rural development policy changes, combined with residual biological habitat impacts from activities in the South Cuyama HOGPA, could result in cumulative impacts.

4.4.2.4.4. Irreversible/Irretrievable Impacts

The loss of an entire species is a significant irreversible impact. If habitat is affected, natural recovery does not occur and restoration is either not attempted or fails, a potentially significant irreversible biological impact occurs. No species are expected to be lost under any of the alternative leasing scenarios.

An irretrievable impact is incurred for a period of time but is reversible. Until disturbed habitats are restored there is an irretrievable impact. If the disturbed habitat is restored and affected species fully recover there is no irreversible impact. No significant irretrievable impacts are anticipated relative to biological resources due to any of the alternatives.

4.4.2.4.5. Short Term/Long Term Tradeoffs

Full recovery of the biological resources in an area disturbed, recontoured and compacted by oil and gas development would take decades after removal of the facilities in this semi-arid environment. While this is not in the same time category as geologic change, it is not a trivial, short-term effect either. To the extent disturbed habitats do not recover there is 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 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.

4.4.2.4.6. Impacts Not Significant In All Alternatives

None of the alternative leasing scenarios should result in furthering 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 are already suffering from significant cumulative impacts as a result of past and present projects. That is why they have been placed on the lists. The Endangered Species Act (ESA) limits the "taking" of any listed species without appropriate mitigation. BLM SLT's, which apply to all alternatives, specifically recognize the need to address listed species and puts the lessee on notice that surveys may 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 National Marine Fisheries Service may also be required at that time. As a result of these site-specific surveys and consultations, impacts should be avoided or mitigated so that the viability of these species is not further jeopardized.

Many species of plants and animals on LPNF will not be impacted by any of the reasonably foreseeable oil and gas activities under any of the alternatives. This is because their habitat is located a sufficient distance from any location where reasonably foreseeable oil and gas activities are expected so as not to be directly or indirectly impacted. This applies to habitats in all withdrawn areas, marine habitats, and habitats in the non-HOGPA area where no reasonably foreseeable oil and gas activities are projected.

All fisheries and aquatic habitats would be protected from direct impacts by moving any proposed surface occupancy to a location outside the habitat. SLT's 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. Fisheries would still be potentially vulnerable to indirect impacts from pollution and sedimentation.

4.4.3. Consequences By Alternative

This section describes the impacts to the biological environment that could occur from oil and gas exploration and development for each of the alternative leasing scenarios.

4.4.3.1. Impacts of Alternative 1

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

4.4.3.1.1. Mitigation Measures and Stipulations

Additional mitigating stipulations cannot be added to the existing lessees, only negotiated 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 (SLT's) would be applied to avoid or mitigate potentially significant impacts. Lessees would be required to fund field surveys specified by LPNF for biological resources potentially impacted by any proposed ground-disturbing activities. Initial efforts would be applied through site selection in areas where impacts could be avoided. BLM SLT's provide for relocation of proposed sites up to 200 meters and delays up to 60 days. This should, in most cases, preclude impacts to sedentary species such as fairy shrimp and plants and minimize effects to nest sites of spotted owls. 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."*

4.4.3.1.2. Direct Impacts

The RFD analysis makes estimates for future oil and gas activities in the Sespe, San Cayetano, and South Cuyama HOGPA areas. RFD projections in the San Cayetano and Sespe areas are for all new wells to be on currently existing well pads. Consequently, there would be no additional surface area disturbed in those HOGPAs. Two additional well pads, 16 additional wells, one mile of road, and one mile of pipeline are projected for the South Cuyama area resulting in 8.3 acres disturbed initially and 7.3 acres after rehabilitation (one acre of impacts mitigated).

In Table 4-14 the RFD projected 8.3 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.

TABLE 4-14: ALTERNATIVE 1: ACRES OF VEGETATION TYPES AFFECTED

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	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	0.8		0.2			3.6	3.6	0.1				8.3

Considering Table 4-14, it is more likely any additional development would occur in the shrub communities with equal chances of development in Mesic Mixed Chaparral and Chamise-dominated Chaparral communities.

In the South Cuyama area, in addition to initial impacts from exploration and drilling, potential long-term impacts could occur to listed and sensitive plant and animal species if habitats containing these species were located in these activity areas. Listed and sensitive species potentially occurring in this area include:

Arroyo toad
Conservancy fairy shrimp
Longhorn fairy shrimp
Vernal pool fairy shrimp
California jewelflower
Hoover's eriastrum
Kern mallow
San Joaquin kit fox
Giant kangaroo rat
California condor
Peregrine falcon
California spotted owl
Blunt-nosed leopard lizard

Non-sedentary species such as California condor, which utilize areas within the South Cuyama HOGPA, are not expected to be significantly affected by the limited amount of oil and gas activities projected. Potential impacts to listed species, if projected to occur as a result of site-specific surveys, would require avoidance or off-site mitigation.

Relocation of proposed oil and gas activities up to 200 meters may preclude direct significant impacts to sedentary species such as fairy shrimp, to fisheries and riparian associated species, to listed and sensitive plants and minimize effects to bird nest sites.

4.4.3.1.3. Indirect Impacts

New wells on existing well pads in the Sespe and San Cayetano HOGPAs could result in indirect impacts. This would include increased vehicular traffic and use of heavy equipment; 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 can affect riparian aquatic habitats. With implementation of the Forest Hazardous Materials Plan, no significant, long-term impacts to riparian and/or aquatic habitats are expected. However, localized, short-term impacts may still occur.

Depending on species and location, 200 meters may not constitute a sufficient relocation distance to avoid significant indirect impacts such as 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 oil and gas resources.

4.4.3.1.4. Cumulative Impacts

Future development of existing oil and gas lease areas in the South Cuyama area if added to Forest Service fuelbreak 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, wildlife and fish 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; increases in contaminants from point and non-point sources; and potential changes in amounts of surface water if oil and gas drilling intercepts natural underground flow regimes.

4.4.3.1.5. Irreversible/Irretrievable Impacts

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

4.4.3.1.6. 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.

4.4.3.1.7. 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 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, 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.

4.4.3.2. Impacts of Alternative 2

Alternative 2, if implemented, would permit leasing all of the study area, up to 766,867 acres, for oil and gas development. This includes all lands that can be considered for lease within LPNF, that is, all lands that are not withdrawn from mineral entry. Currently all 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 alternative leasing scenario.

The RFD analysis projected 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 4-15.

4.4.3.2.1. Mitigation Measures and Stipulations

The measures to mitigate impacts to biological resources that could be applied in Alternative 2 are the same as in Alternative 1. They are the Endangered Species Act, the BLM Standard Lease Terms (SLT's), and Information (Advisory) Notices from the Forest Service. No additional lease stipulations apply for Alternative 2. Lessees would be encouraged to locate activities in areas where impacts could be avoided. Site-specific biological surveys would be required once proposed activities are sited on the ground and ground-disturbing entitlements are sought.

Species listed under the ESA have protected status regardless of which alternative leasing scenario 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 site-specific plans are submitted by lessees.

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.

4.4.3.2.2. Direct Impacts

Development of 151 wells and 19 miles of new roads would directly impact biological resources through additional mortality to species and reduction and alteration of habitats. This alternative is estimated to result in disturbance of 163.3 acres of which approximately 32% would be chaparral vegetation types, 35% would be pinyon-juniper, and 6% sagebrush. More than 35 acres (21%) of this disturbance would be expected to occur in the South Cuyama HOGPA where the possibility of affecting listed and sensitive species is greatest due to the types of habitats located there. Many of the species that may be affected are the same as in Alternative 1, including:

San Joaquin kit fox	Blunt-nosed leopard lizard	California jewelflower
Giant kangaroo rat	Arroyo toad	Hoover's eriastrum
California condor	Conservancy fairy shrimp	Kern mallow
Peregrine falcon	Longhorn fairy shrimp	
California spotted owl	Vernal pool fairy shrimp	

However, there could also be impacts to Smith's blue butterfly in portions of Monterey Ranger District (MRD) outside the Monroe Swell HOGPA; and to potential Goshawk nesting areas near Figueroa Mountain, Arroyo Seco area of MRD, and Management Area 52 west of Frazier Park and near Alamo Mountain. This could result in not attaining goals for fish and wildlife habitat enhancement in the Forest Plan and recovery goals for threatened and endangered species.

TABLE 4-15: ALTERNATIVE 2: ACRES OF VEGETATION TYPES AFFECTED PER HOGPA

	Forested Communities					**Shrub Communities**			**Herb.**	**Other**		
Location	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	Total
HOGPA's (Total for All)	3.5	1.6	21.5	5.7		38.5	79.9	8.2	4.1		0.4	163.3
Piedra Blanca	0.5		0.1	1.3		12.9	7.1		0.1			22.0
San Cayetano	0.9			1.8		9.3	26.1	0.2	0.2			38.4
Sespe	1.3					3.7	23.9	5.4	0.7		0.2	35.2
Rincon Cr.	0.1	0.1				2.2	3.5	0.0	0.0			6.0
S. Cuyama	0.5	0.3	21.3	0.6		4.2	3.9	2.5	1.8		0.1	35.3
La Brea Cyn.	0.1	1.1				2.2	4.6	0.0	0.0			8.1
Figueroa Mtn.	0.0	0.1		2.1		0.6	3.0		0.3			6.1
Lopez Cyn.	0.2					0.6	5.3		0.0			6.1
Monroe Swell	0.0					2.7	2.5		0.9			6.1

BLM SLT's are assumed to allow for relocation of proposed oil and gas activities up to 200 meters. This could preclude direct significant impacts to sedentary species such as fairy shrimp, to fisheries and riparian associated species, to listed and sensitive plants and minimize effects to bird nest sites.

4.4.3.2.3. Indirect Impacts

Indirect impacts would include increased noise and human activity in the areas where development takes place. Such activity could result in 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.

4.4.3.2.4. Cumulative Impacts

Cumulative impacts would be 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 HOGPA's, where a high number of listed species are located within and adjacent to National Forest lands, would receive 43% of the initial disturbance.

4.4.3.2.5. Irreversible/Irretrievable Impacts

Given implementation of mitigation measures discussed below, no significant irreversible or irretrievable impacts are anticipated from this alternative scenario. No species will be lost or put in substantially greater peril due to this alternative, and no resource production will be lost.

4.4.3.2.6. Short Term/Long Term Tradeoffs

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

4.4.3.2.7. Significant Unavoidable Impacts

Application of SLT's 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 would 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.

4.4.3.2.8. Impacts to Terrestrial Wildlife [1]

Direct Mortality

Vehicular collision: Introduction of heavy construction equipment and repetitious vehicular travel into previously unroaded areas increases the vulnerability of wildlife to death by crushing and/or collision. Construction and maintenance worker traffic on secondary roads through suitable habitats normally results in invariable and continuing wildlife collision mortality.

Collision with facilities: Migrating and resident birds are known to collide with structures that interfere with their flight paths. California condors have been killed in collisions with power lines. Waterfowl and neotropical migrants are often killed when striking towers and tall buildings at night.

Indirect Mortality

Habitat loss: Access roads, drilling pads, pump sites, storage tanks, and pipelines all reduce the habitat available for wildlife use. Some of these activities can be mitigated through site restoration and the planting of vegetation preferable to wildlife species (forage and cover species).

[1] Those species not requiring seasonal or permanent water for breeding and reproduction

Disturbance: Increased vehicular traffic and heavy equipment use poses a significant disturbance factor to species adjacent to and within a certain distance of these roads.

Barriers: Pipelines and other linear structures near the ground pose a barrier to larger wildlife species, preventing them from crossing from one habitat area to another.

Pollution: Pollution can occur from accidental spills, reduction in air quality due to dust and vehicular exhaust, and reduction in water quality.

4.4.3.2.9. Potential Impacts to Aquatic Wildlife

Direct mortality

Habitat loss/degradation: Aquatic habitats, including seasonal wetlands, are fragile ecosystems extremely sensitive to disturbance. Alteration of surface water run-off, interception of sub-surface sources, or depletion of ground water will result in losses of aquatic ecosystems. Siltation of water sources may have a variable affect on aquatic vertebrates. Fish that spawn in clean gravels may be reduced, however other aquatic species that utilize other aquatic aspects may not be affected.

Disturbance: Temporary or permanent crossing of wet areas and streams can disturb species and preclude use of certain areas.

Pollution: Accidental spillage of petroleum products or other toxic materials can kill aquatic species (frogs, toads, salamanders). Eggs may be smothered or killed, and larvae and adults killed. During specific periods, aquatic species may migrate from upland habitats to ponds and streams for reproductive purposes. At this time they are vulnerable to mortality on roads. During dry summer or cold winter months, species may become dormant or hibernate in burrows. This renders them vulnerable to crushing by heavy equipment activity.

4.4.3.2.10. Potential Impacts to Fishery Resources

Impacts to fish species are considered similar to those previously described for aquatic wildlife. However, since many fish species utilize bottom substrates for spawning and feed on invertebrates, impacts of siltation is likely much greater for fish.

The Forest is subject to flash flooding from intense winter and spring storms that bring heavy amounts of rainfall directly from the ocean onto the land. In addition, this area is seismically active with frequent earthquakes of varying magnitudes. Since much of the area is dissected with perennial streams, the transportation system will most likely include stream channel crossings. However, the greatest potential for impact to fisheries in this alternative is from siltation and pollution resulting from development and exploration.

4.4.3.2.11. 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.

4.4.3.3. 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.

4.4.3.3.1. 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 and Forest Plan consistency analyses for Alternative 2. Unlike the SLT's in the Alternative 2 leasing scenario these stipulation 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 and mitigate potential impacts below the level of significance. The biological stipulations for Alternative 3, shown in Table 4-16, 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.

4.4.3.3.2. Direct Impacts

The RFD analysis indicates Alternative 3 would result in the disturbance of 45 acres of habitat as shown in Table 4-17. This table was derived by distributing the RFD projections of acres impacted to the vegetation types based on the percent of each vegetation type available for surface occupancy in each HOGPA. Implementation of Alternative 3 provides for the meeting of all listed species recovery goals and desired habitat capability for sensitive species.

4.4.3.3.3. Indirect Impacts

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

4.4.3.3.4. Cumulative Impacts

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

4.4.3.3.5. Irreversible/Irretrievable Impacts

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

4.4.3.3.6. Short Term/Long Term Tradeoffs

Short term/long term tradeoffs would be the same as for Alternative 1, but involve over 37 additional acres of alteration and involve three additional HOGPA's.

4.4.3.3.7. 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.

4.4.3.3.8. Forest Plan Consistency

Alternative 3 is consistent with the Forest Plan.

4.4.3.4. 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.

4.4.3.4.1. Mitigation Measures and Stipulations

Additional stipulations, shown in Table 4-18, 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.

4.4.3.4.2. Direct Impacts

Alternative 4 would cause 43 acres of habitat alteration. However, stipulations would provide for increased protection of habitats and potential habitats of listed and sensitive species. Habitat alteration likely would be primarily in the pinyon-juniper and chaparral vegetative types as shown in Table 4-19.

TABLE 4-16: ALTERNATIVE 3 FISHERIES, WILDLIFE AND SENSITIVE PLANT STIPULATIONS

Stipulation Name	*Forest Plan Direction*	*Mgmt. Areas*	*GIS Attribute Data*	*LSU*	*TL*	*NSO*
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: *Caulanthus californicus, Eremalche parryi kernensis, Eriastrum hooveri*	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.	

4.4.3.4.3. Indirect Impacts

Indirect impacts would be similar to Alternative 3.

4.4.3.4.4. 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.

4.4.3.4.5. Irreversible/Irretrievable Impacts

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

4.4.3.4.6. Short Term/Long Term Tradeoffs

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

4.4.3.4.7. Significant Unavoidable Impacts

No additional significant unavoidable impacts are expected.

4.4.3.4.8. Forest Plan Consistency

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

TABLE 4-17: ALTERNATIVE 3: ACRES OF VEGETATION TYPES AFFECTED PER HOGPA

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	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	0.0	0.0	0.0	0.0	0.0	0
San Cayetano	0.2	0.0	0.0	0.0	0.0	0.5	2.3	0.0	0.0	0.0	0.0	3
Sespe	0.9	0.0	0.0	0.0	0.0	2.6	9.1	1.6	0.2	0.0	0.0	14.5
Rincon Cr.	0.0	0.3	0.0	0.0	0.0	2.0	0.6	0.1	0.0	0.0	0.0	3
S. Cuyama	1.3	0.0	14.0	0.0	0.0	0.4	0.6	4.7	0.5	0.0	0.0	21.5
La Brea Cyn.	0.0	0.3	0.0	0.0	0.0	1.5	1.1	0.0	0.0	0.0	0.0	3
Figueroa Mtn.	0.0	0.0	0.0	0.0	0.0	0.0	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	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	0.0	0.0	0.0	0.0	0.0	0
Total	2.4	0.7	14.0	0.0	0.0	7.0	13.7	6.4	0.7	0.0	0.0	45.0

TABLE 4-18: 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, 52, 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)	

TABLE 4-19: ALTERNATIVE 4: ACRES OF VEGETATION TYPES AFFECTED PER HOGPA

	Forested Communities					**Shrub Communities**			**Herb.**	**Other**		
Location	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	Chamise-dominated Chaparral	Sage-brush	Annual Grass-land	Urban	Barren or Water	Total
Piedra Blanca	0.1	0.0	0.0	0.1	0.0	0.5	2.2	0.0	0.0	0.0	0.0	0
San Cayetano	0.7	0.0	0.0	0.0	0.0	5.0	7.4	1.3	0.2	0.0	0.0	3
Sespe	0.0	0.2	0.0	0.0	0.0	1.6	1.2	0.0	0.0	0.0	0.0	14.5
Rincon Cr.	0.2	0.3	13.6	0.1	0.0	1.8	1.7	0.8	1.0	0.0	0.0	3
S. Cuyama	0.0	0.6	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	19.5
La Brea Cyn.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
Figueroa Mtn.	0.0	0.0	0.0	0.0	0.0	0.0	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	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	0.0	0.0	0.0	0.0	0.0	0
Total	1.1	1.0	13.6	0.3	0.0	10.0	13.7	2.1	1.2	0.0	0.0	43.0

4.4.3.5. 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.

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 4-20.

TABLE 4-20: ALTERNATIVE 4A: ACRES OF VEGETATION TYPES AFFECTED PER HOGPA

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	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	0.0	0.0	0.0	0.0	0.0	0
San Cayetano	0.0	0.0	0.0	0.0	0.0	0.4	2.5	0.0	0.0	0.0	0.0	3
Sespe	0.7	0.0	0.0	0.0	0.0	4.2	7.9	1.4	0.2	0.0	0.0	14.5
Rincon Cr.	0.0	0.4	0.0	0.0	0.0	2.0	0.6	0.1	0.0	0.0	0.0	3
S. Cuyama	0.2	0.0	1.9	0.0	0.0	0.1	0.1	0.7	0.1	0.0	0.0	3
La Brea Cyn.	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	0.0	0.0	0.0	0.0	0.0	0
Total	0.9	0.4	1.9	0.0	0.0	6.7	11.1	2.1	0.2	0.0	0.0	23.5

4.4.3.6. 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.

The acres of vegetation types affected for Alternative 5, per HOGPA, are shown in Table 4-21.

4.4.3.7. 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.

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 4-22.

TABLE 4-21: ALTERNATIVE 5: ACRES OF VEGETATION TYPES AFFECTED PER HOGPA

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	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	0.0	0.0	0.0	0.0	0.0	0
San Cayetano	0.1	0.0	0.0	0.1	0.0	0.5	2.2	0.0	0.0	0.0	0.0	3
Sespe	0.7	0.0	0.0	0.0	0.0	5.0	7.4	1.3	0.2	0.0	0.0	14.5
Rincon Cr.	0.0	0.2	0.0	0.0	0.0	1.6	1.2	0.0	0.0	0.0	0.0	3
S. Cuyama	0.3	0.3	15.0	0.2	0.0	1.9	1.9	0.9	1.1	0.0	0.1	21.5
La Brea Cyn.	0.0	0.6	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	3
Figueroa Mtn.	0.0	0.0	0.0	0.0	0.0	0.0	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	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	0.0	0.0	0.0	0.0	0.0	0
Total	1.1	1.1	15.0	0.3	0.0	10.2	13.9	2.2	1.3	0.0	0.1	45.0

TABLE 4-22: ALTERNATIVE 5A: ACRES OF VEGETATION TYPES AFFECTED PER HOGPA

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Wood -land	Pinyon/ Juniper	Conifer	Coast Red-wood	Mesic Mixed Chap-arral	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	0.0	0.0	0.0	0.0	0.0	0
Piedra Blanca	0.0	0.0	0.0	0.0	0.0	0.4	2.5	0.0	0.0	0.0	0.0	3.0
San Cayetano	0.7	0.0	0.0	0.0	0.0	4.2	7.9	1.4	0.2	0.0	0.0	3.0
Sespe	0.0	0.4	0.0	0.0	0.0	2.0	0.6	0.1	0.0	0.0	0.0	14.5
Rincon Cr.	0.2	0.0	1.9	0.0	0.0	0.1	0.1	0.7	0.1	0.0	0.0	3.0
S. Cuyama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
La Brea Cyn.	0.0	0.0	0.0	0.0	0.0	0.0	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	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	0.0	0.0	0.0	0.0	0.0	0.0
Monroe Swell	0.9	0.4	1.9	0.0	0.0	6.7	11.1	2.1	0.2	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5

4.4.3.8. Response to Issues and Concerns

Several participants in the project scoping process identified specific biological issues and concerns that they believed should be addressed in this analysis. The issues and concerns along with responses regarding the analysis are contained in Table 4-23.

TABLE 4-23: RESPONSE TO ISSUES AND CONCERNS IDENTIFIED IN SCOPING

Issue	Response
Potential impacts to the rare plant *Erigonum butterworthianum* in/near Santa Lucia Memorial Park	None of the HOGPA's in which development is projected to occur is located any closer than 10 miles from Santa Lucia Memorial Park. Santa Lucia Memorial Park is located in the non-HOGPA, which would be leased under the Alternatives 2, 3, 4, 4a, 5 and 5a scenarios. Oil and gas activities in the non-HOGPA are not reasonably foreseeable. Thus, no impact is anticipated. However, if any oil and gas development was proposed in the area in the future, listed plant surveys would first be required and activities located so as not to significantly impact *Erigonium butterworthianum*.
Hazards to birds posed by power lines	In certain instances birds collide with power lines. Power lines will be required to be located at least 200 meters below the crest of hills and ridges and cross watershed boundaries in saddles wherever feasible. Raptor guards on pole cross arms may also be required if indicated in site-specific analysis of proposed plans of operations. As a result, no significant power line impacts to birds are anticipated.
Cumulative impacts to aquatic species	Affects to aquatic species may be direct, cumulative and indirect, e.g. the increases in sediments and contaminants may result in the reduction or elimination of benthic invertebrates while having no direct affect on the species of concern. BLM SLT's allow FS to relocate proposed activities up to 200 meters. This applies to all alternatives. This results, in effect, to no surface occupancy within a 400 meter wide corridor centered on streams and riparian areas. This minimizes direct impacts. Roads, pipelines, and transmission lines will only be allowed within streamside zones and riparian areas where it is absolutely necessary to cross the drainage. In such instances the crossing must be designed to cross the drainage as close to a right angle as feasible and exit the streamside or riparian area as soon as feasible. Limitation of activities in streamside situations, application of erosion and spill protective measures and strict vehicle maintenance should reduce the impacts levels to below the significant level.
Direct habitat loss	Some direct habitat loss would occur under every alternative. However the amounts projected are so small that no significant biological impacts are expected when the SLT's and stipulations are implemented.
Designated and de facto critical habitats	There is a Critical Habitat for least Bell's vireo near Gibraltar Dam, but the area is withdrawn from mineral entry. Critical Habitat for the California condor was designated in 50 CFR 17.95 and included nine specific areas. The Sespe-Piru area takes in portions of the Piedra Blanca and Sespe HOGPA's. Approximately 400 acres of the Sespe HOGPA and 540 acres of the Piedra Blanca HOGPA are designated as Critical Habitat. Consultation with the USFWS would be required prior to any ground-disturbing activities in these areas. Avoidance and/or mitigation to assure no further threat to species viability would be required. Critical habitat for the arroyo southwestern toad was proposed on 6/8/00 (See Fed. Reg. Vol. 65, No. 111) The proposed recovery units include the watersheds of the Sisquoc, Santa Ynez, Sespe and Piru drainages on the Los Padres. Until the final rule is published, all activities in these drainages will require consultation with the U. S. Fish and Wildlife Service.
Future habitats for condor	Development in the South Cuyama HOGPA could result in reduction of availability of future condor habitats, particularly the habitat in conjunction with the Cuyama Valley Preserve.
Avoidance of wildlife migration corridors, esp. between the Sespe and Dick Smith Wildernesses, and the Monterey and Santa Lucia R.D.s.	The only HOGPA located near the Sespe and Dick Smith Wildernesses is Piedra Blanca, and no development would occur there except under Alternative 2 (22 acres disturbed). If Alternative 2 was implemented and a lessee proposed ground-disturbing oil and gas activities site specific biological surveys would be required. These surveys would be tasked with identifying any wildlife migration impacts. Reasonable measures would be required to mitigate any potentially significant impacts to migration corridors. Similar surveys and mitigation methods would be required for any ground-disturbing oil and gas activities lessee(s) would propose in the Monterey and/or Santa Lucia Ranger Districts.

Continued on next page

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 is 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.

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, 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. <u>Archaeological and Historic Resources</u>

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

As discussed in Chapter 2, there are four primary and three additional alternative oil and gas exploration and development scenarios, whose principal distinguishing characteristics are the number and location of wells to be drilled. The four primary alternatives are:

Alternative 1-No Action/No New Leases;
Alternative 2-Emphasize Oil & Gas;
Alternative 3-Meet Forest Plan Direction; and
Alternative 4-Emphasize Surface Resources.

Three other alternatives were developed based on these four primary alternatives. Alternative 5 is a combination of Alternatives 3 and 4. Alternatives 4a and 5a modify Alternatives 4 and 5 by stipulating no surface occupancy within Inventoried Roadless Areas. See Chapter 2 for more detailed descriptions of the alternatives.

Alternative 1, the No Action/No New Leases case, 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 four primary alternatives.

The four primary alternatives have widely varying levels of projected oil and gas development activities in the counties comprising the study area. Tables 4-24 through 4-27 show the number of new wells drilled each year by county for each of the four primary 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. Alternatives 3 and 4 are intermediate cases (63 and 56 wells, respectively) whose impacts on the socioeconomic setting would be lower 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 could be characterized as the minimum case (although technically it is a null case because no new land would be leased). 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 project region 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 large 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, while San Luis Obispo and Monterey Counties will be addressed when particular localized issues and resources merit attention.

TABLE 4-24: NEW WELLS DRILLED BY YEAR AND COUNTY FOR ALTERNATIVE 1

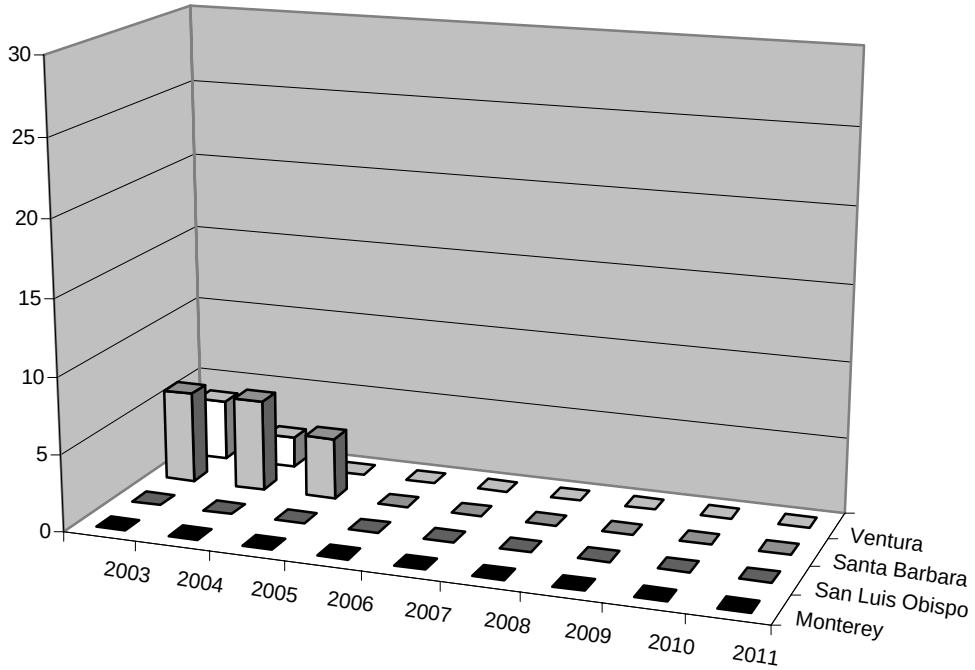


TABLE 4-25: NEW WELLS DRILLED BY YEAR AND COUNTY FOR ALTERNATIVE 2

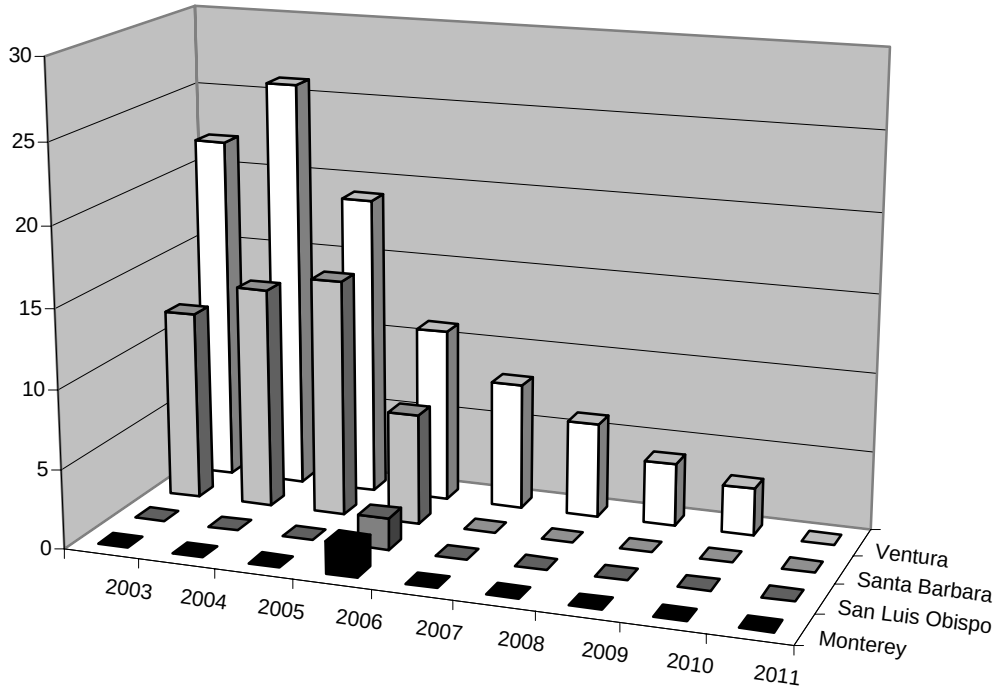


TABLE 4-26: NEW WELLS DRILLED BY YEAR AND COUNTY FOR ALTERNATIVE 3

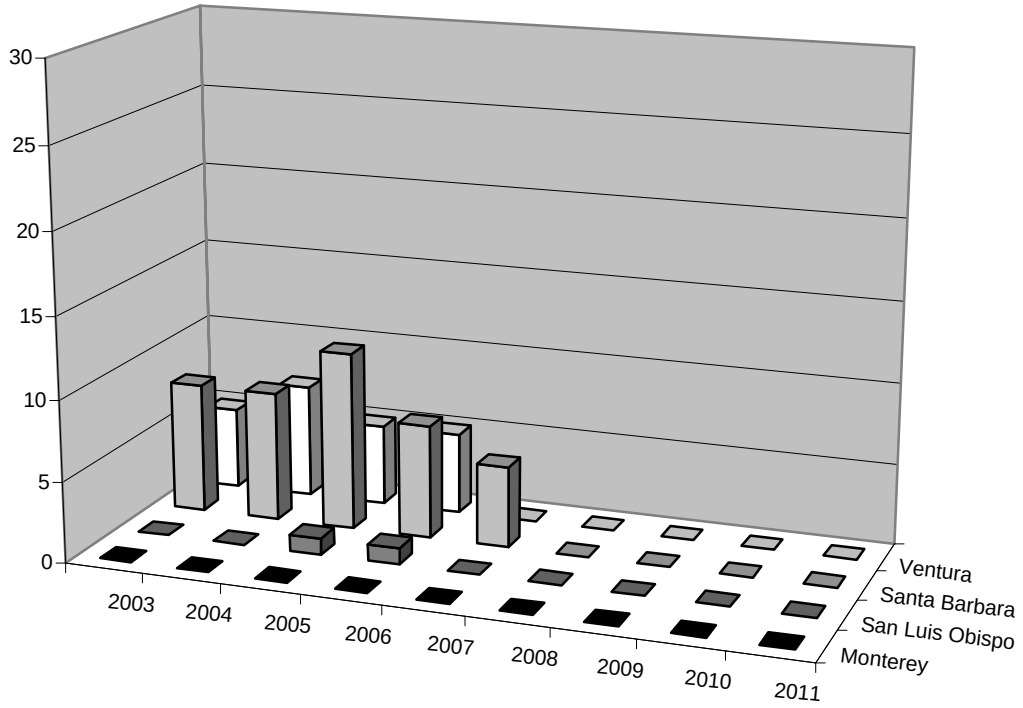
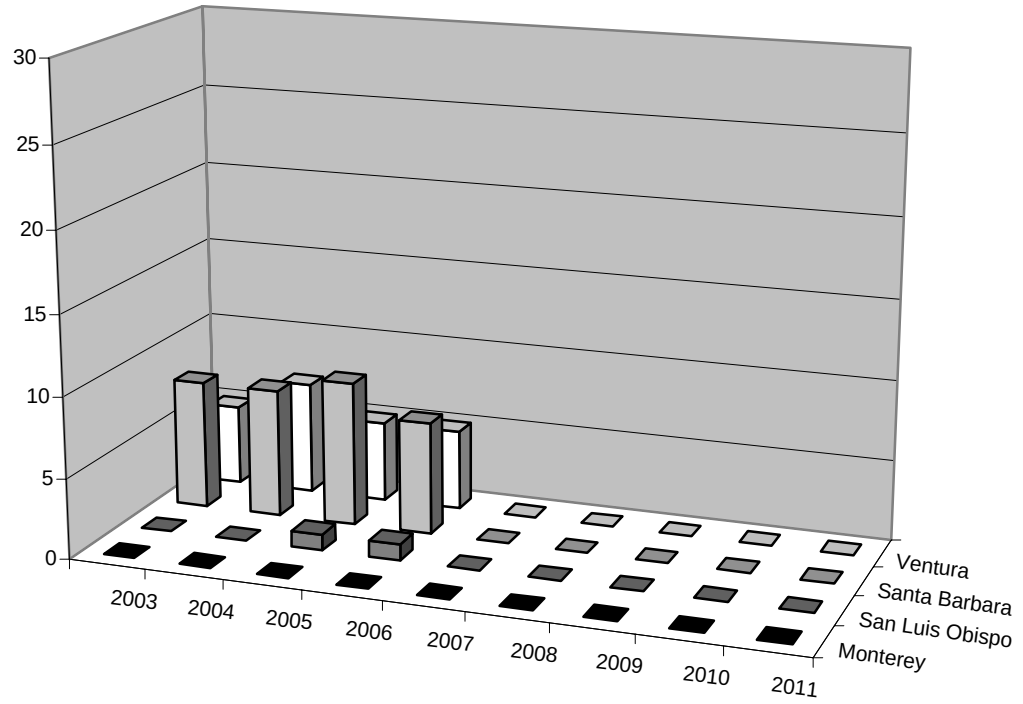


TABLE 4-27: NEW WELLS DRILLED BY YEAR AND COUNTY FOR ALTERNATIVE 4



In order to assess the social and economic impacts of the alternatives it is first necessary to identify the activities that produce impacts. Table 4-28 presents the four primary 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 seismic 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 final two columns in Table 4-28 show the grand total and average costs per well for each well field in each alternative.

The No Action (minimum) development scenario (Alternative 1) specifies 22 wells to be drilled, with six in Ventura County and 16 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 various fields in Ventura County, another 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. The other alternatives are overshadowed by Alternative 2, 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 4-25, 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, as shown in the preceding Table 4-24, Alternative 1's 21 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 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 4-28: ESTIMATED EXPLORATION AND DEVELOPMENT COSTS BY ALTERNATIVE, FIELD, AND COUNTY

Alternative	Field / County	Total Wells	Total Cost $ 1,000	Average Cost Per Well $ 1
1	Piedra Blanca	0	0	--
1	San Cayetano	1	800	800,000
1	Sespe	5	3,525	705,000
1	Rincon Creek	0	0	--
1	**Subtotal Ventura Co.**	**6**	**4,325**	**720,833**
1	South Cuyama	16	15,997	999,788
1	La Brea Canyon	0	0	--
1	Figueroa Mountain	0	0	--
1	**Subtot. Santa Barbara Co.**	**16**	**15,997**	**999,788**
1	**Lopez Canyon (SLO Co.)**	**0**	**0**	**--**
1	**Monroe Swell (MRY Co.)**	**0**	**0**	**--**
1	**Total Alternative 1**	**22**	**20,322**	**923,709**
2	Piedra Blanca	8	2,040	255,000
2	San Cayetano	39	30,377	778,897
2	Sespe	49	35,696	728,490
2	Rincon Creek	3	708	236,000
2	**Subtotal Ventura Co.**	**99**	**68,821**	**695,162**
2	South Cuyama	41	36,586	892,341
2	La Brea Canyon	5	923	184,600
2	Figueroa Mountain	2	448	224,000
2	**Subtot. Santa Barbara Co.**	**48**	**37,957**	**790,771**
2	**Lopez Canyon (SLO Co.)**	**2**	**338**	**169,000**
2	**Monroe Swell (MRY Co.)**	**2**	**225**	**112,500**
2	**Total Alternative 2**	**151**	**107,341**	**710,868**
3	Piedra Blanca	0	0	--
3	San Cayetano	6	4,321	720,167
3	Sespe	14	9,862	704,429
3	Rincon Creek	2	440	220,000
3	**Subtotal Ventura Co.**	**22**	**14,623**	**664,682**
3	South Cuyama	35	31,121	889,171
3	La Brea Canyon	3	585	195,000
3	Figueroa Mountain	1	260	260,000
3	**Subtot. Santa Barbara Co.**	**39**	**31,966**	**819,641**
3	**Lopez Canyon (SLO Co.)**	**2**	**330**	**165,000**
3	**Monroe Swell (MRY Co.)**	**0**	**0**	**--**
3	**Total Alternative 3**	**63**	**46,919**	**744,746**
4	Piedra Blanca	0	0	--
4	San Cayetano	6	4,321	720,167
4	Sespe	14	9,862	704,429
4	Rincon Creek	2	440	220,000
4	**Subtotal Ventura Co.**	**22**	**14,623**	**664,682**
4	South Cuyama	28	24,821	886,464
4	La Brea Canyon	3	585	195,000
4	Figueroa Mountain	1	260	260,000
4	**Subtot. Santa Barbara Co.**	**32**	**25,666**	**802,063**
4	**Lopez Canyon (SLO Co.)**	**2**	**330**	**165,000**
4	**Monroe Swell (MRY Co.)**	**0**	**0**	**--**
4	**Total Alternative 4**	**56**	**40,619**	**725,339**

Source: Rancho Energy Consultants, Inc., 1997.

4.5.2.2. Socioeconomic Effects Common to All Alternatives

All the alternatives would create increases in economic activity (for varying periods of time) in the study area counties. The magnitudes of the exploration and development 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 4-29 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 an additional 11.2 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. <u>Alternative 2 – Emphasis on Oil and Gas Development</u>

The schedule of well field activities projects drilling a maximum of 26 wells in Ventura County fields (in the year 2004) 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.

TABLE 4-29: IMPLAN MODEL COEFFICIENTS FOR LPNF OIL & GAS LEASING ACTIVITIES

Parameter	Ventura	Santa Barbara	San Luis Obispo	Monterey
values in dollars per million $ of direct expenditure; employment in jobs				
Industry Output				
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
Personal Income				
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
Employee Compensation				
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
Indirect Business Taxes				
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.]
Employment (full time equivalent jobs)				
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).

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.*

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.

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.

4.5.3. Social Impacts

Forest neighbors consist of private properties within and adjacent to, 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,*
- *5 new wells in the Sespe area, and*
- *16 news 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 sixteen 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 operations.

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 are 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 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 4-30 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.

TABLE 4-30: 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**
Alternative	*Dry*	*Produce*	*Inject*	*Total*	*# of Pads*	*Roads (miles)*	*Pipelines (miles)*	*Initial*	*After Rehab.*	*(MMBOE)*
4a/5a LPNF	1	4	0	5	1	0.0	1.0	3.0	3.0	2.6
4a/5a Private	1	19	2	22	3	1.0	1.0	12.0	9.0	11.4
4a/5a Total	2	23	2	27	4	1.0	2.0	15.0	12.0	14.0
4	2	24	2	28	4	2.0	2.0	19.5	14.0	14.0
5	2	30	3	35	5	2.0	2.0	21.5	14.0	18.0

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.

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.

4.5.3.2. 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 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. <u>Significance Criteria</u>

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 criteria 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 night-time 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 rectors 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 are not expected to 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

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[2]. 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 4-31 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.

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

[2] 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.

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.

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.

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).

4.5.3.3. Environmental Justice

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

TABLE 4-31: RECOMMENDED NOISE STANDARDS

SENSITIVE AREAS		Residential areas (day)	Residential and recreation areas (night)	Forest dispersed rec. areas (night)	wilderness areas
Recommended Standard:		55 dB(A)	45 dB(A)	40 dB(A)	35 dB(A)
Discussion:		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_{dn} is typical of sound levels measured in rural residential areas; at the dis-tances below, pro-ject sounds would increase existing sound levels 3 dB, a change not deem-ed significant by EPA or ISO.	35-40 dB(A) L_{dn} is typical of sound levels measured in wilderness areas; at the distances be-low, project sounds would increase exis-ting sound levels 3 dB, a change not considered signi-ficant by EPA or ISO.
Construction noise (< 1 year)	If the source noise levels in (dB(A)) are…	noise is attenu-ated 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 con-struction/ 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 snd level < 55 dB(A) at 225 ft.	Pk sound level < 45 dB(A) at 700 ft.	Pk sound level < 40dB(A) at1250 ft.	Pk sound level <35 dB(A) at 2000 ft.
Operations	(10-30 years)				
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. frac-turing (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)

4.5.4. Access / Traffic

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

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

Impact	***Section***
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 accompanying map packet. The transportation system potentially affected is described in Chapter 3.

The results of analysis of commuter and oil tanker traffic generated by HOGPA for Alternatives 1 through 4 are shown in Tables 4-32 and 4-33. The differences between alternatives 3 and 4 are negligible and alternatives 4a, 5, and 5a are expected to be essentially the same as alternatives 3 and 4. Table 3-47 in Chapter 3 shows the expected commuter and oil tanker routes to and from each of the HOGPA's. As noted in Chapter 3 the peak hour traffic for Highway 33 near Ventura is already close to the significance threshold and exceeds the significance threshold for Highway 150 in the vicinity of Ojai.

Commuter and oil tanker truck traffic between Ventura and Piedra Blanca and Rincon Creek HOGPA's would utilize Highway 33 into Ventura. Under Alternative 2 the maximum increase in peak hour traffic would be 56 vehicles per hour in 2005. If there weren't any other sources of increase on this route from 1999 to 2005 the total peak hour traffic would be 3256, which is just under the significance threshold of 3284 for this route. Most likely there will be other new generators of traffic as well and the cumulative impact would be significant. An alternative route to avoid this congestion is US 101 to Highway 150 for Rincon Creek HOGPA or continuing on Highway 150 to Highway 33 north to the Piedra Blanca HOGPA.

All other commute and tanker traffic for all alternatives are below the threshold of significance.

TABLE 4-32: PEAK HOUR OIL TRUCK TRANSPORT BY HOGPA BY ALTERNATIVE

High Oil & Gas Potential Areas	Total Mean Oil Expected *Mill. Barrels*	Total Transported by Truck *%*	Total Transported by Truck *Mill. Barrels*	Truck Destination	Equivalent Peak Veh/hr	Lease Yr. Expected to Occur
Alternative 1						
Piedra Blanca	0					
San Cayetano	0.1	70	0.07	Fillmore	0.4	2003
Sespe	0.4	10	0.04	Fillmore	0.2	2005
Rincon Creek	0					
South Cuyama	6	40	2.4	Taft Area	14.4	2006
La Brea Canyon	0					
Figueroa Mountain	0					
Lopez Canyon	0					
Monroe Swell	0					
Alternative 2						
Piedra Blanca	1.2	100	1.2	Ventura	8.5	2007
San Cayetano	24.1	30	7.23	Fillmore	32.6	2005
Sespe	30.2	10	3.02	Fillmore	13.6	2008
Rincon Creek	0.4	100	0.4	Ventura	1.8	2007
South Cuyama	26.8	30	8.04	Taft Area	36.2	2006
La Brea Canyon	0.8	100	0.8	Santa Maria	3.6	2007
Figueroa Mountain	0.3	100	0.3	Santa Maria	1.4	2006
Lopez Canyon	0.3	100	0.3	Santa Maria	1.4	2006
Monroe Swell	0					
Alternative 3						
Piedra Blanca	0					
San Cayetano	0.5	70	0.35	Fillmore	1.2	2005
Sespe	2.5	10	0.25	Fillmore	0.8	2007
Rincon Creek	0.1	100	0.1	Ventura	0.3	2006
South Cuyama	18	30	5.4	Taft Area	18.3	2006
La Brea Canyon	0.1	100	0.1	Santa Maria	0.3	2007
Figueroa Mountain	0.1	100	0.1	Santa Maria	0.3	2006
Lopez Canyon	0.1	100	0.1	Santa Maria	0.3	2006
Monroe Swell	0					
Alternative 4						
Piedra Blanca	0					
San Cayetano	0.5	70	0.35	Fillmore	1.6	2005
Sespe	2.5	10	0.25	Fillmore	1.1	2007
Rincon Creek	0.1	100	0.1	Ventura	0.5	2006
South Cuyama	14	30	4.2	Taft Area	18.9	2007
La Brea Canyon	0.1	100	0.1	Santa Maria	0.5	2007
Figueroa Mountain	0.1	100	0.1	Santa Maria	0.5	2006
Lopez Canyon	0.1	100	0.1	Santa Maria	0.5	2006
Monroe Swell	0					

TABLE 4-33: PEAK HOUR COMMUTE TRAFFIC GENERATED BY ALTERNATIVE BY HOGPA.

HOGPA	Commuting From	Vehicles per Peak Hour by Years After Lease Date[1]								
		2003	2004	2005	2006	2007	2008	2009	2010	2011
Alternative 1										
Piedra Blanca	Ventura									
San Cayetano	Ventura	10	1	1	1	1	1	1	1	1
Sespe	Ventura	12	12	1	1	1	1	1	1	1
Rincon Creek	Ventura									
South Cuyama	Bakersfield	29	20	14	1	1	1	1	1	1
La Brea Canyon	Santa Maria									
Figueroa Mt.	Santa Maria									
Lopez Canyon	Santa Maria									
Monroe Swell	King city									
Alternative 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
Alternative 3										
Piedra Blanca	Ventura									
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
Monroe Swell	King city									
Alternative 4										
Piedra Blanca	Ventura									
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
Monroe Swell	King city									

[1] *Air Quality Background Report for Los Padres Oil and Gas Leasing EIS, CH2MHILL, August 1998*

An unresolved problem occurs when County maintained roads are used by heavy trucks. Road construction, pad construction, well drilling, and maintenance operations generate substantial repetitions of heavy load traffic. Many rural County roads have not been designed and constructed to meet these needs. The Counties cannot place weight on these roads and collect fees to cover the increased cost of maintenance. The only solutions are: (1) for the oil field developers to contribute to improvements needed to provide a roadway capable of sustaining the heavy traffic without undue maintenance; (2) for the County to improve the road using their own funding, or (3) the road surface will deteriorate, and the Counties will suffer increased maintenance costs.

There are no provisions in the standard lease stipulations to require lessors to contribute more than their vehicle license weight fees toward improvement and maintenance of public roads.

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 2-1, 2-2, 2-6, 2-8, and 2-11. 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.

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.

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 4-34 identifies which Wilderness area each RNA is in.

TABLE 4-34: WILDERNESS LOCATIONS OF DESIGNATED AND CANDIDATE RNA'S.

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

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.

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. <u>Oil and Gas Development</u>

This section addresses the industrial infrastructure needed to process and transport oil and gas, subsurface resource drawdown, 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 Powerlines

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 powerlines, 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 powerlines 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 powerlines 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 powerlines 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 waste water) 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 4-35.

TABLE 4-35: OIL EXPECTED TO BE PRODUCED BY ALTERNATIVE

Alternative	1	2	3	4	4a	5	5a
Millons of Barrels of Oil	6.5	84.1	21.4	17.4	17.3	21.4	17.3

Alternative 1 merely shows the oil from new wells expected under the existing leases. Alternative 2 would produce the most oil, 84.1 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 wells pads are located.

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 and the landscape sensitivity analysis process described in Chapter 3. 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 VQO's. Strong visual contrasts in seldom-seen areas that degrade highly scenic landscapes (Variety Class A) also would not meet Retention or Partial Retention VQO's.

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 powerlines 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. Powerlines could result in the addition of*

structures to the landscape, in the form of poles, towers, and conductors. Powerlines 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 ½ 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. 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 Chapter 3.*

This section also describes whether or not each alternative leasing scenario is expected to comply with the Forest Plan adopted VQO's.

Please note that all impacts of 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.

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 magnitude 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, direct impacts would increase.

The area outside of the HOGPA's (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. But, technology changes. What is not currently foreseeable may be foreseeable in the future.

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 and recreation facilities. 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.

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.

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.

Impacts associated with oil and gas leasing are irreversible as long as the lease area continues to produce and the lessee complies with the lease terms. So the government's ability to reverse or mitigate impacts is solely dependent on authority of existing law and lease terms and stipulations unless the lease stops producing or lease terms are violated.

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.

4.5.7.4. 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 HOGPA's and in the non-HOGPA area. The existing leases are shown on the maps in the accompanying map packet. Only the existing BLM Standard Lease Terms, current lease stipulations and 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 additional development only on existing leases in the San Cayetano, Sespe, and South Cuyama HOGPA's 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 HOGPA's are expected 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. However, the South Cuyama HOGPA is estimated to experience additional development that will result in two new well pads, one mile of new road, and one mile of new pipeline. This new disturbance is estimated to amount to be 8.3 acres initially and 7.3 acres after rehabilitation of initial construction activity.

Alternative 1 Sensitivity to Potentially Significant Direct and/or Indirect Scenic Impacts

Table 4-36 presents the results of the Alternative 1 scenic sensitivity and Forest Plan compliance analysis. This information is also presented in graphical form on a map entitled *Potential Scenic Consequences of Alternative 1* on file with the Scenic Background Report in the Forest Supervisors office. The table shows:

- *the amount of existing lease lands that currently have significant scenic impacts,*
- *the amount of existing lease lands that are or are not susceptible to potentially significant scenic impacts if development occurred there, and*
- *the amount of existing lease lands that would or would not meet Forest Plan scenic requirements if oil and gas development occurred there.*

It is important to note that the consequences of Alternative 1 apply to all other alternatives as well. Alternative 1 represents the minimum amount of oil and gas leasing on LPNF. The entitlements of the existing leases must be a part of all alternatives.

Alternative 1 Forest Plan Compliance

Although Alternative 1 would not allow any new leases, further development that would not meet the adopted VQO's could occur on the existing leases. Whether or not any new development met the adopted VQO's would depend on where the development occurred. There are 14,618 acres within the existing leases. 1,874 acres have adverse impacts from past and present projects. Of the remaining area, 8,288 acres are not projected to meet adopted VQO's if developed and there are 3,121 acres where the adopted VQO's would be met if developed.

Consequently, it is over twice as likely that any additional development, on lands not already impacted, would not be in compliance with the Forest Plan.

Alternative 1 Direct and/or Indirect Impacts

An estimate of the likelihood of potentially significant impacts occurring, should development occur on lands not already adversely impacted, can be achieved by comparing the RFD acres projected to be impacted with the number of acres that are, and are not, susceptible to significant impacts if developed. This is achieved by comparing the next to the last column in the Table 4-36 with the two columns to the left of it. For Alternative 1, only the South Cuyama HOGPA is expected to have any ground-disturbing activities off of existing well pads (8.3 acres before rehabilitation and 7.3 acres after). Table 4-36 indicates there are 720 acres where development would not result in potentially significant impacts and 4,805 acres susceptible to significant impacts in the South Cuyama area. Based on the data in Table 4-36, it's over 6 times more likely that the 8.3 acres expected to be disturbed would be located in an area that is susceptible to potentially significant impacts if developed than not. The actual location would not, however, be a result of chance. It would be a result of further exploration and analysis. The lessee would be made aware of the sensitivity map and encouraged to avoid sensitive locations.

TABLE 4-36: ALTERNATIVE 1 SCENIC CONSEQUENCES (ACRES)

Scenic Impact Sensitivity and Forest Plan Compliance Potential *Alternative 1* (acres)	Existing Lease Area	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 (VQO's) 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						
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?			Is the Area Expected to Change to a Human-dominated Landscape if Developed?						
Area			**Yes**	**No**	**Total**	**Yes**	**No**	**Total**	**Yes**	**No**	**Initially**	**After Rehab.**
San Cayetano	182	34	0	5	5	126	0	126	126	5	0.0	0.0
Sespe	2,875	1,452	0	59	59	1,101	0	1,101	1,101	59	0.0	0.0
South Cuyama	6,216	123	892	720	1,612	3,910	3	3,913	4,805	720	8.3	7.3
Total HOGPA's	9,272	1,609	892	784	1,676	5,137	3	5,140	6,032	784	8.3	7.3
Non-HOGPA	5,346	265	607	838	1,445	3,145	3	3,148	3,755	838	0.0	0.0
Total	14,618	1,874	1,499	1,622	3,121	8,282	6	8,288	9,787	1,622	8.3	7.3

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 8.3 acres out of a total of 14,618 acres of existing lease lands. The likelihood of any development being on susceptible land is the ratio of lands susceptible to the total existing lease areas (4805/5648 or 85%). So, of these 8.3 acres, it's likely that 85%, or 7.1 acres, would result in potentially significant impacts. 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.

Following is an analysis of the potential impacts in each of the three HOGPA's and the non-HOGPA area all of which contain existing lease lands.

San Cayetano HOGPA – 165 existing lease acres

The RFD indicates that no new land impacts are anticipated in this area. However, the area has 34 acres where existing adverse impacts are occurring. Of the remaining 131 acres, only 5 acres are projected to not be susceptible to potentially significant impacts if developed. If this area were substantially developed, visual attention could be drawn away from the rock outcrops and features of the area within the backdrop of the Santa Paula community and focus upon the human developments.

Sespe HOGPA – 2,612 existing lease acres

The RFD indicates that any additional development would take place from existing well pads. There are only 59 acres out of 2,612 acres in the HOGPA that would not be subject to potentially significant impacts if developed. Strong contrasts of landform, color and texture could further draw attention to the human-dominated landscape. Vegetation could be lost and structures, pads and utility lines could dominate the landscape. Contrast of light soil colors could dominate the natural greens and steep landforms. Erosion could become a factor in the redefining of this landscape. Further development outside existing development areas within existing leases could create potentially significant impacts. Intense development on existing pads and disturbed areas could cause further under-achievement of the VQO's.

South Cuyama HOGPA – 5,648 existing lease acres

123 acres in the South Cuyama HOGPA have been or are adversely impacted by past or current activities. Of the remaining 5,525 acres, 4,805 acres would be susceptible to potentially significant impacts if developed and 720 acres would not. Consequently, any development on lands not currently impacted is over 6 times more likely to result in potentially significant impacts than not.

The RFD estimates 8.3 acres of development disturbance initially and 7.3 acres after rehabilitation of initial construction for the South Cuyama HOGPA under Alternative 1. Based on data in Table 4-36, it's likely that 85% of these disturbed areas, or 7.1 acres initially and 6.2 acres after rehabilitation would be located in areas that are not already impacted and susceptible to potentially significant impacts. These impact areas, when added to the 123 acres already impacted, result in a greater cumulative impact that could be significant within the local context.

If developed, the steep landform of the area could become a more dominant characteristic and new color contrasts that are not in character with the existing patterns could become apparent. Reduction of the vegetation that currently softens the landform could have less softening effect

and color contrasts could dominate and bring focus to the alterations created. This could adversely affect views from the Sierra Madre Ridge and other areas.

Non-HOGPA Area – 4,858 existing lease acres

The RFD indicates that no new impacts are anticipated in the existing lease areas of the non-HOGPA area. However, there are 3,755 acres that are susceptible to potentially significant impacts, should development occur there, as opposed to 838 acres that would not be expected to sustain significant impacts if developed. If development did occur, it's four times more likely to occur in areas susceptible to potentially significant impacts than not.

Alternative 1 Cumulative Impacts

Cumulative scenic impacts of Alternative 1 are summarized in Table 4-37. There are 1,874 acres within existing leases and 46,638 acres within the lease study area that are currently experiencing adverse scenic impacts. The current scenic impacts from past and present activities in the Sespe (1,452 acres) and to a lesser extent the South Cuyama (123 acres) and San Cayetano (34 acres) HOGPA's are considered significant in the local context. An additional 7.1 acres of significant impacts are projected to occur in the South Cuyama area. 7.1 acres of impacts may seem small relative to the amount of current impact. However, any additional impacts will increase the locally significant cumulative impacts that are occurring.

TABLE 4-37: ALTERNATIVE 1 IMPACTS AND REHABILITATION (ACRES UNLESS LABELED %)

Area	Current Leased Area	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
San Cayetano	182	34	0	0	126	76.36%	0.0	0.0	34.0	34.0	0	0
Sespe	2,875	1,452	0	0	1,101	42.15%	0.0	0.0	1452.0	1452.0	0	0
South Cuyama	6,216	123	8.3	7.3	4,805	85.07%	7.1	6.2	130.1	129.2	1	0
HOGPA Total	9,272	1,609	8.3	7.3	6,032	71.60%	7.1	6.2	1,616.1	1,615.2	1	0
Non HOGPA	5,346	265	0	0	3,755	77.30%	0.0	0.0	265.0	265.0	0	0
Total	14,618	1,874	8.3	7.3	9,787	73.68%	7.1	6.2	1,881.1	1,880.2	1	0

** of construction activities*

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 7.1 acres of projected additional impact is expected to reduce to 6.2 acres after rehabilitation. Consequently there would be an irretrievable

impact of 7.1 acres until rehabilitation was completed. The 6.2 acre impact thereafter could be irretrievable and/or irreversible depending on whether further rehabilitation was feasible and the extent of landform alterations.

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.

4.5.7.5. Impacts of Alternative 2 - Emphasize Oil and Gas Development

Alternative 2 would lease all of LPNF not withdrawn from mineral entry or already leased. SLT's and information notices would be the only lease conditions for mitigating impacts.

All of the impacts associated with 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 Figure 2-3.

Table 4-38 presents 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 VQO's, if development occurred there. The map also shows areas that would meet adopted VQO's but still have potentially significant impacts from becoming a human-dominated landscape if developed.

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 VQO's should development occur there.

Alternative 2 Direct and/or Indirect Impacts

Alternative 2 is expected to have 163.3 acres of ground-disturbing activities before rehabilitation and 70.1 acres after. As shown in Table 4.38, of the area not currently adversely impacted, there are 120,510 acres where development would not result in significant impacts and 599,719 acres 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. 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. 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 sensitivity map and encouraged to avoid sensitive locations.

Under the Alternative 2 scenario, development can occur anywhere within the area being considered for lease. Substantial alterations of the landscape are possible under Alternative 2 since the only mitigation comes from the BLM Standard Lease Terms and information notices. The amount of lands projected to be impacted in the RFD is 163.3 acres out of a total of 766,867 acres of land proposed for lease. Of these 163.3 acres, it's likely that 78% or 127 acres would result in additional, potentially significant impacts if located off of lands already impacted. This represents .02% of the lands being considered for lease. 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.

TABLE 4-38: ALTERNATIVES 2 SCENIC CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential *Alternative 2* (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 (VQO's) 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**						
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?			**Is the Area Expected to Change to a Human-dominated Landscape if Developed?**						
Area			**Yes**	**No**	**Total**	**Yes**	**No**	**Total**	**Yes**	**No**	**Initial**	**After Rehab**
Piedra Blanca	2,815	266	0	74	74	2,333	142	2,475	2,475	74	22.0	12.0
San Cayetano	13,444	1,264	323	696	1,019	10,999	162	11,161	11,484	696	38.4	16.0
Sespe	12,882	1,980	235	402	637	10,122	143	10,265	10,500	402	35.2	12.1
Rincon Creek	9,052	905	56	516	572	7,362	213	7,575	7,631	516	6.0	3.0
South Cuyama	80,258	973	17,670	21,411	39,081	39,053	1,151	40,204	57,874	21,411	35.3	14.0
La Brea Canyon	9,273	502	547	709	1,256	7,498	17	7,515	8,062	709	8.1	4.0
Figueroa Mtn.	8,745	574	7	350	357	6,533	1,281	7,814	7,821	350	6.1	3.0
Lopez Canyon	2,257	50	39	11	50	2,132	25	2,157	2,196	11	6.1	3.0
Monroe Swell	600	39	41	43	84	469	8	477	518	43	6.1	3.0
Total HOGPA's	139,326	6,553	18,918	24,212	43,130	86,501	3,142	89,643	108,561	24,212	163.3	70.1
Non-HOGPA Area	627,541	40,085	51,941	96,298	148,239	416,346	22,871	439,217	491,158	96,298	0.0	0.0
Total	766,867	46,638	70,859	120,510	191,369	502,847	26,013	528,860	599,719	120,510	163.3	70.1

Following is an analysis of the potential impacts in each of the HOGPA's and the non-HOGPA under the Alternative 2 scenario.

Piedra Blanca HOGPA - 2,815 acres

If the area were developed according to the RFD for Alternative 2, there would be a total of 8 new wells, 1 new well-pad, 5 miles of new roads, and 5 miles of new pipelines. Surface disturbance is estimated to be an additional 22.0 acres before rehabilitation and 12.0 acres after.

Table 4-38 indicates that within the Piedra Blanca HOGPA:

- There are 266 acres where the VQO's are currently not being met, adverse impacts are occurring and where the Forest Plan is not being met.
- There are 2,475 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 74 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is over 33 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location not already impacted would result in potentially significant scenic impacts. 88% of the Piedra Blanca HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 19.3 acres in the short term and 10.6 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.02% of this HOGPA.

The existing landscape variety within this HOGPA offers good opportunities to conceal landscape alterations. The dramatic rock outcrops and contrasts with the dark green vegetation are natural focal points for the viewer. Only major development over large areas would compete with these attractions. The projected 22 acres of ground disturbance would probably not cause a large impact unless the development was concentrated in a susceptible area. However, expanded development of vulnerable areas could drastically change the landform and eliminate the contrasts that currently exist.

San Cayetano HOGPA - 13,444 acres

If the area were developed per the RFD for Alternative 2, there would be a total of 39 new wells, 6 new well pads, 4 miles of new roads, and 4 miles of new pipelines. Surface disturbance is estimated to be an additional 38.4 acres (short-term) and 16 acres (long-term).

Table 4-38 indicates:

- There are 1,264 acres where the adopted VQO's are currently not being met, adverse impacts are occurring and where the Forest Plan is not being met.
- There are 11,484 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.

- There are 696 acres where potentially significant impacts would not be expected if oil and gas development occurred there and the where Forest Plan would be met.

It is over 16 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location not already impacted would result in potentially significant scenic impacts. 85% of the San Cayetano HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 32.8 acres in the short term and 13.7 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.24% of this HOGPA.
If this area were substantially developed, visual attention could be drawn away from the rock outcrops and features of the area within the backdrop of the Santa Paula community and focus upon the human developments. Landform modifications could present contrast with vegetation and the natural features, color and texture.

Sespe HOGPA - 12,882 acres

If the area were developed per the RFD for Alternative 2, there would be a total of 49 new wells, 7 new well pads, 2 miles of new roads, and 1 mile of new pipelines. Surface disturbance is estimated to be an additional 35.2 acres (short-term) and 12.1 acres (long-term).

The Table 4-38 indicates:

- There are 1,980 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 10,500 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 402 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is over 26 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 81.5% of the Sespe HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 28.7 acres in the short term and 9.9 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.22% of this HOGPA.

Strong contrasts of landform, color and texture could further draw attention to the human landscape. Much of the vegetation would be lost as structures; pads and utility lines are constructed. Contrast of light soil colors would dominate the natural greens and steep landforms. Erosion could become a major factor in the redefining of this landscape.

Rincon Creek HOGPA - 9,052 acres

If the area were developed per the RFD for Alternative 2, there would be a total of 3 new wells, 1 new well pad, 1 mile of new road, and no pipelines. Surface disturbance is estimated to be 6 acres (short-term) and 3 acres (long-term).

Table 4-38 indicates:

- There are 905 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 7,631 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and the where Forest Plan would not be met.
- There are 516 acres where potentially significant impacts would not be expected if oil and gas development occurred there and the where Forest Plan would be met.

It is over 14 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 84.3% of the Rincon Creek HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 5.1 acres in the short term and 2.5 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.06% of this HOGPA.

Major changes in visual condition could create strong color contrasts, some changes in landform and large changes in the textures that currently exist in the vegetation. The viewshed from Lake Casitas, a major recreation facility, could be impacted.

South Cuyuma HOGPA - 80,258 acres

If the area were developed per the RFD for Alternative 2, there could be a total of 41 new wells, 6 new well pads, 3 miles of new road, and 3 miles of new pipelines. Surface disturbance is estimated to be 35.3 acres (short-term) and 14 acres (long-term).

Table 4-38 indicates:

- There are 973 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 57,874 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and the where Forest Plan would not be met.
- There are 21,411 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is 2.7 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 72.1% of the South Cuyama HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 25.5 acres in the short term and 10.1 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.03% of this HOGPA.

The resulting alterations could be similar to those of Alternative one, occurring over a larger area. There could be alterations dominating a landscape that is currently in a natural appearing condition.

La Brea Canyon HOGPA - 9,273 acres

If the area were developed per the RFD for Alternative 2, there could be a total of 5 new wells, 1 new well-pad, 1 mile of new road, and 1 mile of new pipeline. Surface disturbance is estimated to be 8.1 acres (short-term) and 4 acres (long-term).

Table 4-38 indicates:

- There are 502 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 8,062 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 709 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is over 11 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 86.9% of the La Brea Canyon HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 7.0 acres in the short term and 3.5 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.08% of this HOGPA.

Major landform alteration could occur under this alternative, dramatically changing the overall appearance of the main characteristics of the overall composition. A human-dominated landscape could become apparent even with small-scale development in this HOGPA.

Figueroa Mountain HOGPA - 8,745 acres

If the area were developed per the RFD for Alternative 2, there could be a total of 2 new wells, 1 new well-pad, 1 mile of new road, and 1 mile of new pipeline. Surface disturbance is estimated to be 6.1 acres (short-term) and 3 acres (long-term).

Table 4-38 indicates:

- There are 574 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 7,821 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 350 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is over 22 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 89.4% of the Figueroa Mountain HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 5.5 acres in the short term and 2.7 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.06% of this HOGPA.

Although the HOGPA offers significant variety to conceal minor alterations, large-scale development would create focal points other than the natural appearing rock outcrops and variety of vegetation texture and color contrasts. Strong linear elements created by roads and/or pipelines could dominate the view from scenic corridors along Hwy 154.

Lopez Canyon HOGPA - 2,257 acres

If the area were developed per the RFD for Alternative 2, there could be a total of 5 new wells, 1 new well-pad, 1 mile of new road, and 1 mile of new pipeline. Surface disturbance is estimated to be 6.1 acres (short-term) and 3 acres (long-term).

Table 4-38 indicates:

- There are 50 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 2,196 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 11 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is over 199 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 97.3% of the Lopez Canyon HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 5.9

acres in the short term and 2.9 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.26% of this HOGPA.

Development most anywhere within this area could cause landform alteration that would appear as focal points within a natural appearing landscape. These developments would create horizontal line elements in an area dominated by vertical uplifting forms. It would also alter the mosaic of vegetation colors and patterns with exposed contrasting colors of soils along the horizontal road elements. The views from Highway 101 and from Lopez Lake could show an unacceptable alteration of the view.

Monroe Swell HOGPA - 600 acres

If the area were developed per the RFD for Alternative 2, there could be a total of 2 new wells, 1 new well-pad, 1 mile of new road, and 1 mile of new pipeline. Surface disturbance is estimated to be 6.1 acres (short-term) and 3 acres (long-term).

Table 4-38 indicates:

- There are 39 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 518 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 43 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

It is over 12 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 86.3% of the Monroe Swell HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario. Consequently, 5.3 acres in the short term and 2.6 acres in the long term are likely to be significantly impacted. These projected likely, potentially significant impact areas represent 0.88% of this HOGPA.

Any development here would be noticeable in this essentially monochromatic landscape. Focal points of color contrast would appear as spots and linear lines across the landscape. The human element would easily dominate.

Non-HOGPA - 627,541 acres

The Non-HOGPA has no reasonably foreseeable oil and gas development.

Table 4-38 indicates:

- There are 40,085 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- There are 491,158 acres where potentially significant impacts would be expected if oil and gas development activities occurred there and where the Forest Plan would not be met.
- There are 96,298 acres where potentially significant impacts would not be expected if oil and gas development occurred there and where the Forest Plan would be met.

The RFD does not project any development in the non-HOGPA. Therefore, there would not be any land in the non-HOGPA impacted in the short term or long term if Alternative 2 were implemented.

It is over 5 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would result in potentially significant scenic impacts. 78.3% of the non-HOGPA would be susceptible to new, potentially significant impacts if developed under the Alternative 2 scenario.

Alternative 2 Cumulative Impacts

Table 4-39 shows existing and projected impacts and likely amount of rehabilitation for Alternative 2. 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 VQO's could not be met, the cumulative impacts on scenery could be highly visible.

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 expected 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 are known at this time.

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.

4.5.7.6. Impacts of Alternative 3 - Meet Forest Plan Direction

The objective of the Alternative 3 scenario is to meet Forest Plan direction. The Forest Plan requires meeting the adopted Visual Quality Objectives except under certain conditions for which the Forest Supervisor is given discretionary authority to allow minor adjustments that result in under-achievement of the VQO's 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 and the minimum VQO for each management area cannot be under-achieved. As a consequence, wherever this discretion is applied the Forest Plan is met. Since the Forest Supervisor's discretion is limited to making only minor adjustments, this discretion would only be exercised where the context and intensity of the development activities are such that the scenic impacts will not be significant. The areas where the Forest Supervisor may allow under-achievement of adopted VQO's and potential rehabilitation areas are shown in Table 4-40.

TABLE 4-39: ALTERNATIVE 2 IMPACTS AND REHABILITATION LIKELY

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
HOGPA Total	139,326	6,553	163.3	70.1	108,561	77.92%	135.0	58.4	6,688.0	6,611.4	93.2	0.0
Non HOGPA	627,541	40085	0	0	491,158	78.27%	0.0	0.0	40085.0	40085.0	0.0	0.0
Total	766,867	46,638	163.3	70.1	599,719	78.20%	135.0	58.4	46,773.0	46,696.4	93.2	0.0

** of construction activities*

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.

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 4-41 indicates there are 628,151 acres where these activities would not result in potentially significant impacts and 92,078 acres susceptible to potentially significant impacts by changing to a human-dominated landscape if developed. Further examination of Table 4-41 and the underlying data shows:

- *All VQO requirements are met*
- *Areas susceptible to significant impacts are because the scenic condition would change to a human-dominated landscape if the activities occurred there.*

TABLE 4-40: AREAS WHERE FOREST SUPERVISOR MAY ALLOW UNDER-ACHIEVEMENT OF ADOPTED VQO'S AND POTENTIAL REHABILITATION AREAS UNDER ALTERNATIVE 3 LEASING SCENARIO

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

Some of the areas in Table 4-41 identified as being vulnerable to potentially significant impacts are a result of the Forest Supervisor discretion to allow underachieving the adopted VQO's. If indeed exercising this discretion were to result in significant impacts, the discretion would not be exercised. This potential significance would be evaluated in future NEPA analysis when a lessee submitted more specific plans regarding the context and intensity of proposed activities.

Under the Alternative 3 scenario oil and gas activities can occur anywhere within the area being considered for lease. The amount of the lands projected to be impacted in the RFD is 45 acres out of a total of 766,867 acres of lands proposed for lease. Of these 45 acres, 8.7 acres could result in potentially 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. Furthermore, the only areas identified as susceptible to significant impacts in Alternative 3 outside of the existing lease areas are:

- *Where the Forest Supervisor Allows Under-achieving of VQO's.*
- *Where the VQO's allow a human-dominated landscape and the existing scenic conditions appear as a natural landscape.*

Table 4-41 shows the amount of lands that could sustain disturbances with and without incurring potentially 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 would be susceptible to potentially significant impacts, if developed, from 599,719 in Alternative 2 to 92,078 in Alternative 3.

TABLE 4-41: 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 (VQO's) 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						
			Is the Area Expected to Change to a Human-Dominated Landscape if Developed?			Is the Area Expected to Change to a Human-Dominated Landscape if Developed?						
Area			**Yes**	**No**	**Total**	**Yes**	**No**	**Total**	**Yes**	**No**	**Initial**	**After Rehab**
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
Total HOGPA's	139,326	6,553	31,081	101,692	132,773	0	0	0	31,081	101,692	45.0	31.5
Non-HOGPA	627,541	40,085	60,997	526,459	587,456	0	0	0	60,997	526,459	0.0	0.0
Total	766,867	46,638	92,078	628,151	720,229	0	0	0	92,078	628,151	45.0	31.5

It has already been stated that the Forest Supervisor will not exercise discretion to allow under-achieving VQO's where it will result in significant impacts.

The context of the various locations was considered in the forest planning process when the VQO's 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.

Opportunities to Decrease Significant Impacts

Application of Alternative 3 scenic stipulation #2 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 4-42. Alternative 3 scenic stipulation #2 allows for implementation of the Forest Supervisor's discretion to allow under-achieving of adopted VQO's by one level. This discretion will only be exercised where it will not result in significant impacts. The stipulation 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 4-42 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.

TABLE 4-42: ALTERNATIVE 3 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		Areas Subject to Off-Site Rehab. if Developed		Likely Rehabilitated	
			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
HOGPA Total	139,326	6,553	45.0	31.5	31,081	22.3%	8.7	5.8	6,561.7	6,558.8	6,553	4.7%	13.5	4.2
Non HOGPA	627,541	40,085	0.0	0.0	60,997	9.7%	0.0	0.0	40,085.0	40,085.0	40,085	6.4%	0.0	0.0
Total	766,867	46,638	45.0	31.5	92,078	12.0%	8.7	5.8	46,646.7	46,643.8	46,638	6.1%	13.5	4.2

** of construction activities*

Changes to Human-Dominated Landscapes

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. For Alternative 3 this can occur where:

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

The resultant human-dominated landscape would only occur if the Forest Supervisor discretion to allow under achievement of the adopted VQO's were implemented. This discretion will not be implemented where it would be expected to result in a significant scenic impact.

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 VQO's 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.

Alternative 3 - Potential for Significant Scenic Impacts

If Alternative 3 were implemented, potentially significant impacts to the scenic resources could occur as follows:

- *Existing significant scenic impacts as described under Alternative 1 would continue to occur in Alternative 3 except in areas that may be rehabilitated. These areas that are currently impacted would be sites for rehabilitation required under Alternative 3 scenic stipulation # 2 which requires an equal area of rehabilitation for areas where the Forest Supervisor allows under achievement of VQO's by one level.*
- *Significant scenic impacts may occur where oil and gas development transforms a natural appearing landscape into a human-dominated landscape. These areas are located where:*
    - *The existing scenic condition is not human-dominated and, either:*
    - *The adopted VQO allows for a human-dominated landscape or,*
    - *Exercising Forest Supervisor discretion to allow under-achieving the adopted VQO's by one level could result in a human-dominated scenic condition.*

As a result of these potential impacts, some scarring, erosion and additional roads could appear as additional vegetation loss and openings in the landscape that appear human made. There could also be additional color contrasts.

The potential impacts for the Alternative 3 leasing scenario for each HOGPA and the non-HOGPA are presented below.

Piedra Blanca HOGPA – 2,815 acres

No oil & gas development is projected in the RFD for the Piedra Blanca HOGPA under Alternative 3. However, the HOGPA would still be available for lease and thus potentially subject to development.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA's to oil and gas development is as follows:

- There are 266 acres where existing, potentially significant, impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 2,758 of the 2,815 acres in the HOGPA.
- There are no areas where additional, potentially significant impacts would be expected if oil and gas development activities occurred there.
- There are 2 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

Given the stipulations, none of the HOGPA would experience additional, potentially significant scenic impacts if developed. The natural appearing landscape with dramatic rock formations, strong color contrasts and vast views from observation points would still remain dominant.

San Cayetano HOGPA – 13,444 acres

If the area were developed per the RFD for Alternative 3, there would be a total of 6 new wells, 1 new well-pad, 0.1 miles of new roads, and no new pipelines. Surface disturbance is estimated to be 3 acres (short-term) and 3 acres (long-term). This projected amount of disturbed land is .02% of the total area in the HOGPA.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 1,264 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 13,142 of the 13,444 acres in the HOGPA.
- There are 75 acres that would change to a human-dominated landscape if developed.

- There are 57 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is over 161 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 99.4% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario. Consequently, .02 acres in the short term and .02 acres in the long term are likely to be significantly impacted. These projected potentially significant impact areas represent 0.00012% of this HOGPA.

Given it's likely that only .017 acres would have potentially significant impacts in this HOGPA, alterations to the characteristic landscape would be expected to be minor and not detract from the natural appearing line, form and color that exist. Overall appearances would be expected to be similar to those of Alternative 1.

Sespe HOGPA – 12,882 acres

If the area were developed per the RFD for Alternative 3, there would be a total of 14 new wells, 3 new well-pads, 1 mile of new roads, and 1 mile of new pipeline. Surface disturbance is estimated to be 14.5 acres (short-term) and 8.5 acres (long-term). This projected amount of disturbed land is one tenth of one percent of the total area in the HOGPA.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 1,980 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 11,777 of the 12,882 acres in the HOGPA.
- There are 429 acres that would change to a human-dominated landscape if developed.
- There are 185 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is over 24 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 96.7% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario. Consequently, .48 acres in the short term and .28 acres in the long term are likely to be significantly impacted. These projected potentially significant impact areas represent 0.00375% of this HOGPA.

Some scarring, erosion and additional roads may appear as additional vegetation loss and openings in the landscape that appear human made. There could also be additional color contrasts. However, given the stipulations, and small amount of potentially significant impact area likely, these alterations to the characteristic landscape would not be expected to substantially detract from the natural appearing line, form and color that exist. Overall appearances would be expected to be similar to those of Alternative 1.

Rincon Creek HOGPA – 9052 acres

If the area were developed per the RFD for Alternative 3, there would be a total of 2 new wells, 1 new well-pad, no new roads, and no new pipelines. Surface disturbance is estimated to be 3 acres (short-term) and 3 acres (long-term).

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 905 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 6,791 of the 9,052 acres in the HOGPA.
- There are no areas that would change to a human-dominated landscape if developed.
- There are 33 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

None of the HOGPA area would be susceptible to significant impacts if developed. None of the area would show any noticeable change from existing conditions. Overall appearances would be expected to be similar to those of Alternative 1.

South Cuyama HOGPA – 80,258 acres

If the area were developed per the RFD for Alternative 3, there would be a total of 35 new wells, 5 new well-pads, 2 miles of new roads, and 2 miles of new pipelines. Surface disturbance is estimated to be 21.5 acres (short-term) and 14 acres (long-term). This projected amount of disturbed land is 2.7 hundreths of one percent of the total area in the HOGPA.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA's to oil and gas development is as follows:

- There are 973 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.

- No surface occupancy would be allowed on 33,635 of the 80,258 acres in the HOGPA.
- There are 28,174 acres that would change to a human-dominated landscape if developed.
- There are 9,580 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is 1.8 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 64.9% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario. Consequently, 7.5 acres in the short term and 4.9 acres in the long term are likely to be potentially significantly impacted. Although such areas are susceptible to potentially significant impacts, the impacts most likely would not be considered significant since the adopted VQO's allow for such human-dominated landscapes in these areas. These projected potentially significant impact areas represent 0.0094% of this HOGPA.

La Brea Canyon HOGPA – 9,273 acres

If the area were developed per the RFD for Alternative 3, there would be a total of 3 new wells, 1 new well-pads, no new roads, and no new pipelines. Surface disturbance is estimated to be 3 acres (short-term) and 3 acres (long-term). This projected amount of disturbed land is three hundreths of one percent of the total area in the HOGPA.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 502 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 6,877 of the 9,273 acres in the HOGPA.
- There are 1,926 acres that would change to a human-dominated landscape if developed.
- There are 688 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is 3.6 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 79.2% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario. Consequently, 0.6 acres in the short term and 0.6 acres in the long term are likely to be potentially significantly impacted. Although such areas are susceptible to potentially significant impacts, the impacts most likely would not be considered

significant since the adopted VQO's allow for such human-dominated landscapes in these areas. These projected potentially significant impact areas represent 0.0067% of this HOGPA.

Figueroa Mountain HOGPA – 8,745 acres

If the area were developed per the RFD for Alternative 3, there would be a total of 1 new well on private lands, no new roads, and no new pipelines. No surface disturbance on LPNF lands is projected.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 574 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 7,900 of the 8,745 acres in the HOGPA.
- There are 390 acres that would change to a human-dominated landscape if developed.
- There are 324 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is 20 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 95.5% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario.

Lopez Canyon HOGPA – 2,257

If the area were developed per the RFD for Alternative 3, there would be a total of 2 new wells on private lands, no new roads, and no new pipelines. No surface disturbance on LPNF lands is projected.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 50 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 2,211 of the 2,257 acres in the HOGPA.
- There are 77 acres that would change to a human-dominated landscape if developed.

- There are 29 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is over 27 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 96.6% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario.

Monroe Swell HOGPA – 600 acres

If the area were developed per the RFD for Alternative 3, there would be no oil and gas development in this HOGPA.

Tables 4-41 and 4-42 indicate the sensitivity of the HOGPA to oil and gas development is as follows:

- There are 39 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 570 of the 600 acres in the HOGPA.
- There are 10 acres that would change to a human-dominated landscape if developed.
- There are 8 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is over 55 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 98.3% of the HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario.

Non-HOGPA Area – 627,541 acres

If the area were developed per the RFD for Alternative 3, there would be no oil and gas development in the non-HOGPA area.

Tables 4-41 and 4-42 indicate the sensitivity of the non-HOGPA to oil and gas development is as follows:

- There are 40,085 acres where the VQO's are currently not being met, potentially significant impacts are occurring and where the Forest Plan is not being met.
- No surface occupancy would be allowed on 428,725 of the 627,541 acres in the non-HOGPA.

- There are 60,997 acres that would change to a human-dominated landscape if developed.
- There are 38,269 acres where, if developed, scenic stipulation 2 could apply requiring off-site as well as on-site rehabilitation resulting in a potential net decrease in significant scenic impacts.

It is over 8 times more likely than not, based on the scenic sensitivity analysis, that development at any particular location, not already impacted, would not result in potentially significant scenic impacts. 90.3% of the non-HOGPA would not be susceptible to new, potentially significant impacts if developed under the Alternative 3 scenario.

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 14,618 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 existing scenic conditions are not human dominated, where the VQO's allow for a human-dominated landscape. The context and anticipated intensity was considered in determining the VQO's 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.

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 table 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.

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.

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.

4.5.7.7. Impacts of Alternative 4 - Emphasize Surface Resources

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 VQO's 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 VQO's 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 VQO's and*

B. *Not result in landscapes changing from natural appearing to human-dominated unless allowed in the Forest Plan.*

In addition, Alternative 4 requires off-site landscape rehabilitation in areas that are currently impacted if the VQO's 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 VQO's are exceeded. Impact mitigating stipulations are required wherever VQO's are not exceeded. Consequently, Alternative 4 would not result in any new significant impacts except in existing lease areas. Furthermore, there would possibly be rehabilitation of some currently impacted landscapes. Table 4-43 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 4-45, it's estimated that Alternative 4 lease stipulation # 2 would result in 0.8 acres of rehabilitation.

Table 4-44 shows the Alternative 4 Scenic Consequences. 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 VQO's would be met or exceeded in all cases and no landscape would be changed to human-dominated. Lease stipulation #2 requires rehabilitation of an equal amount of land as those disturbed, where the application of BLM Standard Lease Terms meet,

but do not exceed, the adopted VQO's. Standard Lease Terms alone are only allowed if their application exceeds the VQO's by at least one level.

Alternative 4 Forest Plan Compliance

Alternative 4 meets the Forest Plan scenic requirements. Development of new leases would result in the Forest Plan scenic requirements being met, no additional significant scenic impacts occurring and possibly some existing landscape impacts being rehabilitated.

Alternative 4 Direct and/or Indirect Impacts

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. 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 4-45, only 0.8 acres of off-site rehabilitation are projected to be required.

TABLE 4-43: ALTERNATIVE 4: LANDS REQUIRING AND CANDIDATE LANDS FOR OFF-SITE REHABILITATION

HOGPA/non-HOGPA	**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 yelllow)**		**Candidate lands for off-site mitigation**	
HOGPA's	acres	acres	%	acres	%
Piedra Blanca	2,815	73	2.6%	266	9.45%
San Cayetano	13,444	173	1.3%	1,264	9.40%
Sespe	12,882	449	3.5%	1,980	15.37%
Rincon Creek	9,052	445	4.9%	905	10.00%
South Cuyama	80,258	211	0.3%	973	1.21%
La Brea Canyon	9,273	41	0.4%	502	5.41%
Figueroa Mountain	8,745	507	5.8%	574	6.56%
Lopez Canyon	2,257	34	1.5%	50	2.22%
Monroe Swell	600	11	1.8%	39	6.50%
Total HOGPA's	139,326	1,944	1.4%	6,553	4.70%
Non-HOGPA Area	627,541	12,798	2.0%	40,085	6.39%
Total Lease Area	766,867	14,742	1.9%	46,638	6.08%

Following is a summary of the Alternative 4 scenic analysis results for each HOGPA and the non-HOGPA area. Since all adopted VQO's are met and no human-dominated landscapes are created under Alternative 4, this summary focuses on the RFD development projections and the potential for rehabilitating lands currently impacted.

TABLE 4-44: ALTERNATIVE 4 CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential *Alternative 4* (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 (VQO's) 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						
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?			Is the Area Expected to Change to a Human-dominated Landscape if Developed?						
Area			**Yes**	**No**	**Total**	**Yes**	**No**	**Total**	**Yes**	**No**	**Initial**	**After Rehab**
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	0	12,180	12,180	0	0	0	0	12,180	3.0	3.0
Sespe	12,882	1,980	0	10,902	10,902	0	0	0	0	10,902	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	0	79,285	79,285	0	0	0	0	79,285	19.5	14.0
La Brea Canyon	9,273	502	0	8,771	8,771	0	0	0	0	8,771	3.0	3.0
Figueroa Mtn.	8,745	574	0	8,171	8,171	0	0	0	0	8,171	0.0	0.0
Lopez Canyon	2,257	50	0	2,207	2,207	0	0	0	0	2,207	0.0	0.0
Monroe Swell	600	39	0	561	561	0	0	0	0	561	0.0	0.0
Total HOGPA's	139,326	6,553	0	132,773	132,773	0	0	0	0	132,773	43.0	31.5
Non-HOGPA Area	627,541	40,085	0	587,456	587,456	0	0	0	0	587,456	0.0	0.0
Total	766,867	46,638	0	720,229	720,229	0	0	0	0	720,229	43.0	31.5

Piedra Blanca HOGPA – 2,815 acres

There are no RFD activities projected under Alternative 4 for this HOGPA.

If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts. There are 73 acres out of the 2,815 acres in the HOGPA where application of SLT's would meet, but not exceed, the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 266 acres in the HOGPA where the off-site rehabilitation could occur.

San Cayetano HOGPA – 13,444 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 6 new wells on one well pad, 0.1 miles of new roads, and no new pipelines. The road would disturb 3 acres.

If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 173 acres out of the 13,444 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 1,264 acres in the HOGPA where the off-site rehabilitation could occur.

TABLE 4-45: 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 Site *	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
Figueroa 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
HOGPA Total	139,326	6,553	43.0	31.5	1,944	1.4%	11.5	0.8
Non HOGPA	627,541	40,085	0.0	0.0	12,798	2.0%	0.0	0.0
Total	766,867	46,638	43.0	31.5	14,742	1.9%	11.5	0.8

** of construction activities*

Sespe HOGPA – 12,882 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 14 new wells on 3 well pads, 1 mile of new roads, and 1 mile of new pipelines. 14.5 acres of surface disturbance is projected before and 8.5 acres after rehabilitation. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 449 acres out of the 12,882 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 1,980 acres in the HOGPA where the off-site rehabilitation could occur.

Rincon Creek HOGPA – 9,052 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 2 new wells on one well pad, no new roads, and no new pipelines. 3 acres of surface disturbance is projected

for the well pad. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 445 acres out of the 9,052 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 905 acres in the HOGPA where the off-site rehabilitation could occur.

South Cuyama HOGPA – 80,258 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 28 new wells on 4 well pads, 2 miles of new roads, and 2 miles of new pipelines. 19.5 acres of surface disturbance is projected before and 14 acres after rehabilitation. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 211 acres out of the 80,258 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 973 acres in the HOGPA where the off-site rehabilitation could occur.

La Brea Canyon HOGPA – 9,273 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 3 new wells on 1 well pad, no new roads, and no new pipelines. 3 acres of surface disturbance is projected for the well pad. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 41 acres out of the 9,273 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 502 acres in the HOGPA where the off-site rehabilitation could occur.

Figueroa Mountain HOGPA – 8,745 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 1 new well on private land, no new roads, and no new pipelines. No surface disturbance is projected on LPNF. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 507 acres out of the 8,745 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 574 acres in the HOGPA where the off-site rehabilitation could occur.

Lopez Canyon HOGPA – 2,257 acres

If the area were developed per the RFD for Alternative 4, there would be a total of 2 new wells on private land, no new roads, and no new pipelines. No surface disturbance is projected on

LPNF. If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 34 acres out of the 2,257 acres in the HOGPA where application of SLT's would meet but not exceed the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 50 acres in the HOGPA where the off-site rehabilitation could occur.

Monroe Swell HOGPA – 600 acres

There are no RFD activities projected under Alternative 4 for this HOGPA.

If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 11 acres out of the 600 acres in the HOGPA where application of SLT's would meet, but not exceed, the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 39 acres in the HOGPA where the off-site rehabilitation could occur.

Non HOGPA Area – 627,541 acres

There is no development projected for the non-HOGPA area and there are no lands in the non-HOGPA that are vulnerable to potentially significant impacts if developed, given the Alternative 4 stipulations.

If development did occur the VQO's would be met and there would not be any resultant potentially significant impacts.

There are 12,768 acres out of the 627,541 acres in the non-HOGPA where application of SLT's would meet, but not exceed, the VQO's. Oil and gas development in these areas would require off-site rehabilitation. There are 40,085 acres in the non-HOGPA where the off-site rehabilitation could occur.

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 14,618 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 be 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 as shown in Table 4-45.

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 to 43 acres before rehabilitation. This table 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.

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.

4.5.7.8. Impacts of Alternative 4a - Alternative 4 with Roadless Conservation Area Emphasis

Alternative 4a is a modification to Alternative 4 in which the Inventoried Roadless Areas (IRAs) are allocated to NSO. The consequences of Alternative 4a are shown in Table 4-46.
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 and further reduces the potential impacts.

4.5.7.9. Impacts of Alternative 5 - Combination of Alternative 3 and 4

The projected scenic impacts of Alternative 5 are essentially 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.

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. The NSO areas in Alternative 3 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 constringent stipulations in Alternative 3 stemming from other resource concerns.

4.5.7.10. Impacts of Alternative 5a - Alternative 5 with Roadless Conservation Area Emphasis

Alternative 5a is a modification to Alternative 5 in which the Inventoried Roadless Areas (IRAs) are allocated to NSO. The consequences of Alternative 5a are shown in Table 4-47.

TABLE 4-46: ALTERNATIVES 4A SCENIC CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential *Alternative 2* (acres)	Total Area	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 (VQO's) 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						
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?			Is the Area Expected to Change to a Human-dominated Landscape if Developed?						
Area			Yes	No	Total	Yes	No	Total	Yes	No	Initial	After Rehab
HOGPA's												
Piedra Blanca	2,815	266	0	2,477	2,477	0	72	72	72	2,477	0.0	0.0
San Cayetano	13,444	1,264	3	12,080	12,083	0	97	97	100	12,080	3.0	3.0
Sespe	12,882	1,980	335	9,774	10,109	0	793	793	1,128	9,774	14.5	8.5
Rincon Creek	9,052	905	0	7,951	7,951	0	196	196	196	7,951	3.0	3.0
South Cuyama	80,258	973	759	78,340	79,099	0	186	186	945	78,340	3.0	3.0
La Brea Canyon	9,273	502	314	8,136	8,450	0	321	321	635	8,136	0.0	0.0
Figueroa Mtn.	8,745	574	12	7,652	7,664	0	507	507	519	7,652	0.0	0.0
Lopez Canyon	2,257	50	4	2,154	2,158	0	49	49	53	2,154	0.0	0.0
Monroe Swell	600	39	2	552	554	0	7	7	9	552	0.0	0.0
Total HOGPA's	139,326	6,553	1,429	129,116	130,545	0	2,228	2,228	3,657	129,116	23.5	17.5
Non-HOGPA	627,541	40,085	11,535	567,225	578,760	0	8,696	8,696	20,231	567,225	0.0	0.0
Total	766,867	46,638	12,964	696,341	709,305	0	10,924	10,924	23,888	696,341	23.5	17.5

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 basis of the Alternatives. This can readily be seen on the maps for these Alternatives in the accompanying 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.

TABLE 4-47: ALTERNATIVES 5A CONSEQUENCES

Scenic Impact Sensitivity and Forest Plan Compliance Potential *Alternative 2* (acres)	**Total Area**	**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 (VQO's) 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**						
			Is the Area Expected to Change to a Human-dominated Landscape if Developed?			**Is the Area Expected to Change to a Human-dominated Landscape if Developed?**						
Area			**Yes**	**No**	**Total**	**Yes**	**No**	**Total**	**Yes**	**No**	**Initial**	**After Rehab**
HOGPA's												
Piedra Blanca	734	111	0	602	602	0	21	21	21	602	0.0	0.0
San Cayetano	8,396	1,105	0	7,223	7,223	0	68	68	68	7,223	3.0	3.0
Sespe	9,780	1,010	310	7,645	7,955	0	815	815	1,125	7,645	14.5	8.5
Rincon Creek	7,552	680	0	6,707	6,707	0	165	165	165	6,707	3.0	3.0
South Cuyama	33,998	842	736	32,238	32,974	0	182	182	918	32,238	3.0	3.0
La Brea Canyon	6,596	160	317	5,835	6,152	0	284	284	601	5,835	0.0	0.0
Figueroa Mtn.	7,237	76	10	6,779	6,789	0	372	372	382	6,779	0.0	0.0
Lopez Canyon	2,257	3	0	2,201	2,201	0	53	53	53	2,201	0.0	0.0
Monroe Swell	600	34	2	557	559	0	7	7	9	557	0.0	0.0
Total HOGPA's	77,150	4,021	1,375	69,787	71,162	0	1,967	1,967	3,342	69,787	23.5	17.5
Non-HOGPA	365,943	24,075	12,305	323,893	336,198	0	5,670	5,670	17,975	323,893	0.0	0.0
No Lease	323,774	18,542	0	0	0	0	0	0	0	0	0.0	0.0
Total	766,867	46,638	13,680	393,680	407,360	0	7,637	7,637	21,317	393,680	23.5	17.5

N/A = Not applicable: Area not to be leased.

4.5.7.11. Comparison of Alternatives

Table 4.48 shows how the scenic impact sensitivity to oil and gas development varies by alternative 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, an additional 9,787 acres of lands, not currently impacted, are vulnerable to impact under existing lease rights. These rights to develop continue as long as the lease is producing and the current lease terms are met. This alternative 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 that would be vulnerable to potentially significant impacts if developed available for new leases.

Although Alternative 3 meets the Forest Plan, it still would add 92,078 acres of land above Alternative 1 that would be 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 VQO's that allow human-dominated landscapes or Forest Supervisor discretion to allow under-achievement. As a result, resultant 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 VQO's to be met or exceeded. If VQO's are exceeded no off-site rehabilitation is required. If VQO's 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.

TABLE 4-48: 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**		
Area	*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 Susceptible to Significant Impacts*	
HOGPA's			Lease Study Area	Existing Leases		No	Yes		No	Yes		No	Yes		No	Yes
Piedra Blanca	2,815	0	266	0	0.0	0	0	22.0	74	2,475	0.0	2,549	0	0.0	2,549	0
San Cayetano	13,444	182	1,264	34	0.0	5	126	38.4	696	11,484	3.0	12,105	75	3.0	12,180	0
Sespe	12,882	2,875	1,980	1,452	0.0	59	1,101	35.2	402	10,500	14.5	10,473	429	14.5	10,902	0
Rincon Creek	9,052	0	905	0	0.0	0	0	6.0	516	7,631	3.0	8,147	0	3.0	8,147	0
South Cuyama	80,258	6,216	973	123	8.3	720	4,805	35.3	21,411	57,874	21.5	51,111	28,174	19.5	79,285	0
La Brea Canyon	9,273	0	502	0	0.0	0	0	8.1	709	8,062	3.0	6,845	1,926	3.0	8,771	0
Figueroa Mtn.	8,745	0	574	0	0.0	0	0	6.1	350	7,821	0.0	7,781	390	0.0	8,171	0
Lopez Canyon	2,257	0	50	0	0.0	0	0	6.1	11	2,196	0.0	2,130	77	0.0	2,207	0
Monroe Swell	600	0	39	0	0.0	0	0	6.1	43	518	0.0	551	10	0.0	561	0
HOGPA Total	139,326	9,272	6,553	1,609	8.3	784	6,032	163.3	24,212	108,561	45.0	101,692	31,081	43.0	132,773	0
Non HOGPA	627,541	5,346	40,085	265	0.0	838	3,755	0.0	96,298	491,158	0.0	526,459	60,997	0.0	587,456	0
Total	766,867	14,618	46,638	1,874	8.3	1,622	9,787	163.3	120,510	599,719	45.0	628,151	92,078	43.0	720,229	0

4.5.7.12. Analysis Of Issues and Concerns

Table 4-49 documents how each alternative responds 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 alternatives 2, 3, and 4 are in addition to Alternative 1 impacts.

TABLE 4-49: RESPONSE TO ISSUES BY ALTERNATIVES

Issues and Concerns	Alternative 1	Alternative 2	Alternatives 3, 5 & 5a	Alternatives 4 & 4a
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 VQO's. 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.*
2. Tepesquet Peak	*Not impacted*	*Potentially scenic impacts from development in La Brea Canyon HOGPA.*	*Forest Plan requirements are met but VQO's 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.*
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.*
4. Hwy 33 south of the crest	*Not impacted*	*Potentially significant impacts from development in Piedra Blanca HOGPA's*	*The viewsheds are protected by NSO and LSU stipulations.*	*Viewshed protected by NSO and LSU stipulations.*
5. Ojai Valley viewshed.	*Not impacted*	*Potentially significant impacts in the San Cayetano and Rincon Creek HOGPA's*	*3 acres of development is projected for Rincon Creek HOGPA, but the viewsheds are protected by NSO and LSU stipulations.*	*Viewshed protected by NSO and LSU stipulations.*

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TABLE 4-49: RESPONSE TO ISSUES BY ALTERNATIVES (CONTINUED)

Issues and Concerns	Alternative 1	Alternative 2	Alternatives 3, 5 & 5a	Alternatives 4 & 4a
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.*
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.*
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.*
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.*
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 VQO's allow human-dominated landscapes.*	*Viewsheds protected by NSO and LSU stipulations. Some existing impact areas may be rehabilitated.*
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.*
12. Recommendation 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 VQO's to be met.*	*Leases are allowed but with NSO and LSU stipulations that protect specific concerns.*
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.*
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.*

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TABLE 4-49: RESPONSE TO ISSUES BY ALTERNATIVES (CONTINUED)

Issues and Concerns	Alternative 1	Alternative 2	Alternatives 3, 5 & 5a	Alternatives 4 & 4a
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.*
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 VQO's 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.*
17. "Dark skies"	*Potential for increased impact to "dark skies" in Sespe, San Cayetano, and South Cuyama HOGPA's.*	*Potential for increased impact to "dark skies" in all HOGPA's. May be more significant in Sespe, San Cayetano, and South Cuyama HOGPA's 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*
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-HOGA 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.*
19. VQO should be "management activities are not visually evident."	*Adopted Forest VQO's are set. It is not the purpose of this study to change adopted VQO's*	*Adopted Forest VQO's are set. It is not the purpose of this study to change adopted VQO's*	*Adopted Forest VQO's are set. It is not the purpose of this study to change adopted VQO's*	*Adopted Forest VQO's are set. It is not the purpose of this study to change adopted VQO's*
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 HOGPA's and non-HOGPA could be impacted.*	*Solitude within the viewsheds of the HOGPA's and non-HOGPA may be adversely impacted where VQO's allow a human-dominated landscape either directly or via Forest Supervisor's discretion to lower VQO's one level. Impacts are not expected to be significant.*	*Viewsheds protected by NSO and LSU stipulations.*

4.5.8. Safety and Hazards

This section addresses fire, geologic, and spill and well blowout hazards.

4.5.8.1. Fire Hazards

The largest wildfire in Los Padres National Forest from gas and oil operations was the Santa Paula fire (1962) which burned 40 acres of National Forest land and 1700 acres of private land. The total area burned by gas and oil operations on Los Padres National Forest for 1940 through 1980 was 3,343 acres resulting from 22 fires.

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 were no irreversible losses to resources due to past oil related wildfires. There was some irretrievable loss especially to the visual resource for 1 to 2 years after the fire. The adverse effect, which cannot be avoided, is the increased probability of a major wildfire.

PROSPECTING: The aerial activities included under the prospecting phase should have little impact, other than the slight possibility of plane crashes. Any of the associated "on-ground" activities increase the possibility of fires due to discarded cigarettes or other careless use of fire.

Off-road travel during seismic work may create a high 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 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. Should a blowout occur, the oil and other hydrocarbon products present would fuel the fire if one were ignited.

DEVELOPMENT AND PRODUCTION: Pumping well 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 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

Standard Lease Terms

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).

- *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.*

Preparation of a "fire plan", decreases the likelihood that an escaped wildfire would become a major fire (one that directly burns over 10,000 acres and may cost several million dollars to suppress)

Fire prevention and suppression plans have been prepared by lessee/operators in the Sespe Oil Field (the primary focus of exploration and development within the Forest) since 1968. From that time until the present, there have been twelve statistical fires (ones threatening Forest resources or requiring Forest Service suppression activities) in the Sespe Oil Field. These twelve fires burned a total of 25,000 acres. The Hopper fire (1997) burned over 24,000 of these acres.

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 could 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 the timber could not be enjoyed by recreationists, botanists, or others 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. The seismic hazard is high on LPNF. The San Andreas fault borders the north eastern part of the Forest. There are other active faults on LPNF. A large magnitude seismic event could cause very significant impacts to oil and gas developments if they are not designed to withstand the seismic loading. Local building codes have design standards that reflect the seismic hazard and should be strictly adhered to.

4.5.8.3. Spill Hazards

The potential sources of hazardous materials are many. 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 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.

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.

There are many factors that determine how significant a spill could be. 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 expected routes of oil tank trucks and the waterways at risk are shown in Table 3-46.

When any spill occurs, the Los Padres National Forest 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, and coordinating on-the-scene cleanup operations. 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.

The 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.

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.

When a discharge by private parties or parties under contract to the Forest Service occurs, the Forest Service makes every effort to encourage the individual, corporation, or agency responsible for causing a discharge to take appropriate action. When this cannot be accomplished, the Forest Service initiates containment, cleanup, disposal, restoration action, and provides the financing. Following the cleanup effort, the Forest Service first seeks reimbursement by billing the individual, corporation, or agency responsible for causing the discharge. If billing is not successful, the Forest Service may seek reimbursement through litigation.

If the discharger is unknown or unwilling to clean up the discharge after legal notification and if the discharge directly affects or may potentially affect navigable waters, then money from the U.S. Coast Guard Pollution Revolving Fund may be available for the cleanup operation.

All oil, hazardous substances, and toxic wastes produced either by oil and/or gas wells or used to drill such wells will be disposed of at a hazardous substance disposal site-Class I disposal site. The 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. The Regional Water Quality Control Board issues waste discharge requirements for the toxic waste site. If these requirements are not met the Board can issue a cease and desist order directing the operator to clean up the site to meet state standards. Violations of cease and desist orders may result in Board referrals to the State Attorney General for enforcement.

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 1940's to .03% in the 1980's.

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 4-50. 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 4-50: TYPICAL IMPACTS TO RECREATION OPPORTUNITIES

Potential Impact Area	Potentially Significant Direct Impacts	Potentially Significant Indirect Impacts
Designated Wilderness Areas	*No Potentially Significant Direct Impacts:* 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.	*Potentially Significant Indirect Impacts:* Within LPNF there are 814,560 acres of designated Wilderness areas. This represents over 45% of LPNF. Many of the HOGPA's 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.
Inventoried Roadless Areas (IRA's)	*Potentially Significant Direct Impacts:* 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 *Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural*, and *Rural* ROS classes. Potential direct impact of oil and gas activities and facilities within IRA's depend on the particular ROS class(es) within each IRA.	*Potentially Significant Indirect Impacts:* Recreation opportunities vary in IRA's on LPNF depending on the adopted ROS class within each roadless area. Portions of IRA's are in *Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural*, and *Rural* ROS classes. Potential indirect impact of oil and gas activities and facilities within IRA's depend on the particular ROS class(es) with each roadless area.
Wild and Scenic Rivers	*Potentially Significant Direct Impacts:* Oil and gas activities and facilities are not consistent with the environmental setting expectations of recreationists within Wild and Scenic River areas and could cause significant direct impacts to the recreational experience if located within the designated Wild and Scenic Rivers area.	*Potentially Significant Indirect Impacts:* 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 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	*No Potentially Significant Direct Impacts:* All *Primitive* 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.	*Potentially Significant Indirect Impacts:* All *Primitive* ROS class areas on LPNF are in designated Wilderness areas. Oil and gas development outside of *Primitive* 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 *Primitive* ROS class areas. Oil and gas activities and facilities could significantly impact the recreational experience if located within close proximity of *Primitive* ROS class areas and are detectable within the area.

TABLE 4-50: TYPICAL IMPACTS TO RECREATION OPPORTUNITIES CONTINUED

Potential Impact Area	Potentially Significant Direct Impacts	Potentially Significant Indirect Impacts
Semi-Primitive Non-Motorized (SPNM) ROS Areas	*Potentially Significant Direct Impacts:* Oil and gas activities and facilities are not consistent with the norm condition setting indicators for the *Semi-Primitive Non-Motorized* ROS class. Construction of even primitive roads would change the ROS setting from *Semi-Primitive Non-Motorized* to *Semi-Primitive Motorized*. The access improvements and presence of facilities would alter the sense of remoteness and naturalness.	*Potentially Significant Indirect Impacts:* Oil and gas development outside of *Semi-Primitive Non-Motorized* 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 *Semi-Primitive Non-Motorized* ROS class areas. Oil and gas activities and facilities could significantly impact the recreational experience if located within close proximity of *Semi-Primitive Non-Motorized* ROS class areas and are perceptible within the area.
Semi-Primitive Motorized (SPM) ROS Areas	*Potentially Significant Direct Impacts:* The norm condition indicators for the *Semi-Primitive Motorized* 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.	*Potentially Significant Indirect Impacts:* Oil and gas activities and facilities may have indirect recreational impacts to *Semi-Primitive Motorized* ROS class areas if they are within such close proximity that they adversely impact the norm condition indicators for the ROS class.
Roaded Natural (RN) ROS Areas	*Potentially Significant Direct Impacts:* Effectively planned, designed, and implemented oil and gas activities and facilities, within the densities limits, can be within the norm condition indicators for the *Roaded Natural* ROS class. Potentially significant recreational impacts could occur if these densities or ROS norm conditions are exceeded.	*Potentially Significant Indirect Impacts:* Oil and gas activities and facilities may have indirect recreational impacts to *Roaded Natural* ROS class areas if they are within such close proximity that they adversely impact the norm condition indicators for the ROS class.
Rural (R) ROS Areas	*No Potentially Significant Direct Impacts:* The norm condition indicators for the *Rural* 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 setting indicator norm conditions are exceeded.	*No Potentially Significant Indirect Impacts:* Oil and gas activities outside of *Rural* ROS areas would not have significant indirect impacts on recreational opportunities within the *Rural* ROS area.
Developed Recreation Sites	*Potentially Significant Direct Impacts:* Oil and gas activities and facilities are not consistent with developed recreation sites. If an oil and gas activity or facility was located within a developed recreation site such as a campground or day use area significant direct impacts would occur to the recreation experience.	*Potentially Significant Indirect Impacts:* 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.

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 3 wells in the San Cayetano area. (NOTE: The tables 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. Two additional well pads, 16 additional wells, one mile of road, and one mile of pipeline are projected for the South Cuyama area resulting in 8.3 acres disturbed before rehabilitation and 7.3 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.

Direct and Indirect Impacts

If San Cayetano were developed per the RFD scenario for Alternative 1, there would be a total of 1 new well 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. However, 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 4 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.

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 5 new wells on existing well pads, no new roads, and no new pipelines. This is expected to continue the impacts to recreational opportunities.

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

The existing leases in the South Cuyama area total approximately 16 square miles or roughly 10,000 acres. The current oil and gas development within existing 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.

Direct Impacts

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 these 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.

If the South Cuyama area were developed per the RFD scenario for Alternative 1, there would be a total of 16 new wells, 2 new well pads, 1.0 mile of new road(s), and 1.0 mile of new pipeline(s). Surface disturbance would be 8.3 acres (initially) and 7.3 acres (after rehabilitation).

ROS classes adopted in the Forest Plan for existing leases in the South Cuyama area are approximately 4 square miles in *Semi-Primitive Motorized* in the Bates Canyon area, and approximately 12 square miles in *Roaded Natural* ROS class in the remainder of the South Cuyama area. Excluding the over-developed parcels in the existing Cuyama oil field (.6 square miles) there is 15.4 square miles of undeveloped existing lease area remaining in the South Cuyama area. According to Section 2.5.3.1.3.2, if all 15.4 square miles of undeveloped existing leases were in the more restrictive *Semi-Primitive Motorized* ROS class, there could be oil & gas development of 123 wells, 46 well pads, 21 miles of roads and 21 miles of pipeline without significantly impacting recreation opportunities. This assumes the development would be evenly distributed throughout the area.

The RFD projected amount of additional development is considerably less than the amount calculated using Section 2.5.3.1.3.2 densities. Even if all development occurred in *Semi-Primitive Motorized* ROS class, Alternative 1 would not cause any additional significant, direct impacts to recreation opportunities in the South Cuyama area due to over dense development, provided it was not located on the two parcels of NFS land in the Cuyama oil field.

The Bates Canyon Campground is within the existing oil and gas lease boundaries in the South Cuyama area. Under Alternative 1, new oil and gas activities could directly impact this developed site with surface disturbances, plus the sights, smells or sounds of oil and gas activities could adversely affect recreation experiences at or near the site.

Indirect Impacts

Significant indirect impacts to Aliso Park, Bates Campgrounds and the San Rafael Wilderness area could occur depending on the location, context, and intensity of development.

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 Sespe area has an ROS class of *Rural* with existing oil and gas facilities densities that underachieve the ROS class by one level. Additional development on existing leases in the Sespe area, even though only reasonably foreseeable on existing drill pads, would contribute to the cumulative effects which are already significant. Even though the adopted ROS class for the developed federal parcels in the Cuyuma 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

An irreversible impact is one that is permanent once it occurs as in the loss of an entire species. An irretrievable impact occurs for a period of time but is not irreversible.

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 7.1 acres of projected additional impact is expected to reduce to 6.2 acres after rehabilitation of initial construction. Consequently there would be an irretrievable impact of 7.1 acres until rehabilitation was completed. The 6.2 acre impact thereafter could be irretrievable and/or irreversible depending on whether further rehabilitation was feasible and the extent of landform alterations.

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

Alternative 1 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. Leased lands would consist of all LPNF except 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 HOGPA's.

Table 4-51 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 4-51 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 4-52 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).

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 4-51 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.

Indirect Impacts

If oil and gas activities or facilities occurred in the Piedra Blanca HOGPA and were apparent 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 4-51: MAXIMUM OIL & GAS FACILITIES PER HOGPA

	ROS CLASS *				Total
	SPNM	SPM	RN	R	
Piedra Blanca (square miles)	2.5	0.0	1.9	0.0	4.4
Oil Wells			30.4		30.4
Well Pads, Treatment Facilities, and/or Tank Farms			9.5		9.5
Miles of Roads			5.3		5.3
Miles of Pipelines			5.3		5.3
San Cayetano (square miles)	1.6	16.0	3.5	0.0	21.0
Oil Wells		127.8	55.5		183.4
Well Pads, Treatment Facilities, and/or Tank Farms		47.9	17.4		65.3
Miles of Roads		22.4	9.7		32.1
Miles of Pipelines		22.4	9.7		32.1
Sespe (square miles)	7.9	0.0	0.0	12.3	20.1
Oil Wells				490.7	490.7
Well Pads, Treatment Facilities, and/or Tank Farms				159.5	159.5
Miles of Roads				85.9	85.9
Miles of Pipelines				85.9	85.9
Rincon Creek (square miles)	2.3	5.2	6.6	0.0	14.1
Oil Wells		41.9	105.6		147.5
Well Pads, Treatment Facilities, and/or Tank Farms		15.7	33.0		48.7
Miles of Roads		7.3	18.5		25.8
Miles of Pipelines		7.3	18.5		25.8
South Cuyama (square miles)	1.8	98.2	25.4	0.0	125.4
Oil Wells		785.7	406.0		1191.7
Well Pads, Treatment Facilities, and/or Tank Farms		294.6	126.9		421.5
Miles of Roads		137.5	71.0		208.5
Miles of Pipelines		137.5	71.0		208.5
La Brea Canyon (square miles)	0.0	2.1	12.4	0.0	14.5
Oil Wells		16.6	198.7		215.3
Well Pads, Treatment Facilities, and/or Tank Farms		6.2	62.1		68.3
Miles of Roads		2.9	34.8		37.7
Miles of Pipelines		2.9	34.8		37.7
Figueroa Mountain (square miles)	3.5	2.1	8.0	0.0	13.7
Oil Wells		17.0	128.0		144.9
Well Pads, Treatment Facilities, and/or Tank Farms		6.4	40.0		46.4
Miles of Roads		3.0	22.4		25.4
Miles of Pipelines		3.0	22.4		25.4
Lopez Canyon (square miles)	2.1	0.0	1.4	0.0	3.5
Oil Wells			22.7		22.7
Well Pads, Treatment Facilities, and/or Tank Farms			7.1		7.1
Miles of Roads			4.0		4.0
Miles of Pipelines			4.0		4.0
Monroe Swell (square miles)	0.0	0.0	0.9	0.0	0.9
Oil Wells			15.0		15.0
Well Pads, Treatment Facilities, and/or Tank Farms			4.7		4.7
Miles of Roads			2.6		2.6
Miles of Pipelines			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 4-52: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 2.

HOGPA / Non-HOGPA	Inventoried Roadless Areas		Surface Occupancy Available					% of HOGPA
			ROS Class in Area (acres)				Total Available	
	ID #	Name	Semi Primitive Non Motorized	Semi Primitive Motorized	Roaded Natural	Rural		
Piedra Blanca	5002	Sespe Frazier	428		479	907	1,814	64.4%
		Not in an IRA	1,169		739		1,908	67.8%
		Total	1,597		1,218		2,815	100.0%
San Cayetano	5132	Nordoff		1,309	840		2,149	16.0%
	5002	Sespe Frazier	997	7,889	756		9,642	71.7%
		Subtotal Roadless	997	9,198	1,596		11,791	87.7%
		Not in an IRA		1,028	625		1,653	12.3%
		Total	997	10,226	2,221		13,444	100.0%
Sespe	5002	Sespe Frazier	4,395			1,395	5,790	44.9%
		Not in an IRA	634			6,458	7,092	55.1%
		Total	5,029			7,853	12,882	100.0%
Rincon Creek	5130	White Ledge	480	667	606		1,753	19.4%
		Not in an IRA	996	2,685	3,618		7,299	80.6%
		Total	1,476	3,352	4,224		9,052	100.0%
South Cuyama	5134	Sawmill-Badlands		12,288	6,905		19,193	23.9%
	5124	Madulce-Buckhorn		149	369		518	0.6%
	5120	Fox Mountain	1,140	32,704	3,692		37,536	46.8%
	5135	Cuyama		15,829	1,409		17,238	21.5%
	5118	Spoor Canyon	19		234		253	0.3%
		Subtotal Roadless	1,159	60,970	12,609		74,738	93.1%
		Not in an IRA	3	1,889	3,628		5,520	6.9%
		Total	1,162	62,859	16,237		80,258	100.0%
La Brea Canyon	5116	Tapusquet Peak			5,816		5,816	62.7%
	5117	La Brea		340	610		950	10.2%
	5115	Horseshoe Springs		214	506		720	7.8%
		Subtotal Roadless		554	6,932		7,486	80.7%
		Not in an IRA		770	1,017		1,787	19.3%
		Total		1,324	7,949		9,273	100.0%
Figueroa Mountain	5279	De La Guerra		144	273		417	4.8%
		Not in an IRA	2,268	1,212	4,848		8,328	95.2%
		Total	2,268	1,356	5,121		8,745	100.0%
Lopez Canyon		Not in an IRA	1,349		908		2,257	100.0%
Monroe Swell		Not in an IRA			600		600	100.0%
Total HOGPA's		Roadless	7,459	71,533	22,495	2,302	103,789	74.0%
		Not in an IRA	6,419	7,584	15,983	6,458	36,444	26.0%
		Total HOGPA's	13,878	79,117	38,478	8,760	140,233	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 (2,221acres or 17% of the HOGPA) is 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).

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 4-51 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 4-51 indicates 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 greatest impacts within this area would affect the remoteness of the area. 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 a Inventoried Roadless Area.

Portions of IRA 5002, Sespe Frazier are in the east end of the HOGPA with ROS's of *Semi-Primitive Non Motorized* and *Semi-Primitive Motorized*. Introducing roads here would decrease the remoteness and naturalness and increase the social encounters.

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.

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, Table 4-51 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 would 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.

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).

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 4-51 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*, *Semi-Primitive Non-Motorized.* Introducing roads in this area would affect naturalness, remoteness and social encounters.

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).

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 4-51 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 a 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.

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) is *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).

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 Table 4-51 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 is 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.

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).

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 Table 4-51 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.

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).

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 4-51 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.

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).

Direct Impacts

Table 4-51 indicates there is sufficient area to potentially sustain the development without significant impacts depending on the specific locations of activities and facilities.

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 HOGPA's. 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, 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.

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.

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.

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.

Roaded Natural ROS Class – 359,636 acres

More than half of the Non-HOGPA area is in the adopted *Roaded 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.

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.

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 4-53.

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 4-53: DEVELOPED RECREATION SITES IN THE NON-HOGPA

Site Name	Ranger Dist.	Forest Map Ref.	Site Name	Ranger Dist.	Forest Map Ref.
China Camp	Monterey	D2	Chuchupate	Mt Pinos	R6
White Oaks	Monterey	D2	Dutchman	Mt Pinos	R7
Arroyo Seco	Monterey	E3	Gold Hill	Mt Pinos	R7
Escondido	Monterey	E3	Kings Camp	Mt Pinos	R7
Memorial Park	Monterey	E4	Twin Pines	Mt Pinos	R7
Nacimiento	Monterey	E4	Hard Luck	Mt Pinos	S7
Ponderosa	Monterey	E5	Potrero Seco	Ojai	M7
Ballanger	Mt Pinos	M5	Reyes Creek	Ojai	N7
Rancho Nuevo	Mt Pinos	M7	Holiday	Ojai	N8
Tinta	Mt Pinos	M7	Wheeler Gorge	Ojai	N8
Valle Vista	Mt Pinos	N5	Beaver	Ojai	P8
Nettle Spring	Mt Pinos	N6	Lion	Ojai	P8
Ozena	Mt Pinos	N7	Middle Lion	Ojai	P8
Reyes Creek	Mt Pinos	N7	Piedra Blanca	Ojai	P8
Marian	Mt Pinos	P5	Rose Valley	Ojai	P8
Caballo	Mt Pinos	P6	Cerro Alto	Santa Lucia	B1
Campo Alto	Mt Pinos	P6	Hi Mountain	Santa Lucia	D2
Chula Vista	Mt Pinos	P6	Friis	Santa Lucia	E1
Dome Springs	Mt Pinos	P6	American Canyon	Santa Lucia	E2
Mt. Pinos	Mt Pinos	P6	La Panza	Santa Lucia	E2
Toads Springs	Mt Pinos	P6	Navajo	Santa Lucia	E2
Pine Spring	Mt Pinos	P7	Stony Creek	Santa Lucia	E3
CSO Camp	Mt Pinos	Q6	Baja	Santa Lucia	F3
El Camino	Mt Pinos	Q6	Horseshoe Spring	Santa Lucia	F5
Frontier Pines	Mt Pinos	Q6	Brookshire Spring	Santa Lucia	G4
McGill	Mt Pinos	Q6	Miranda Pine	Santa Lucia	G4
Half Moon	Mt Pinos	Q7	Lazy	Santa Lucia	G5
Thorn Meadow	Mt Pinos	Q7	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 4-54.

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 4-54.

TABLE 4-54: ALTERNATIVE 3 RECREATION STIPULATIONS

Stipulation Reference	Forest Plan Direction	Limited Surface Use	No Surface Occupancy Stipulations
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 *Semi-Primitive Non-Motorized* 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 4-55 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 recreational 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 all IRA's are under the no surface occupancy stipulation.

TABLE 4-55: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 3.

HOGPA / Non-HOGPA	Inventoried Roadless		Surface Occupancy Unavailable			Surface Occupancy Available					Total Acres	% of HOGPA
						ROS Class in Area (acres)						
	ID #	Name	No Lease (NL)	No Surface Occupancy (NSO)	Total Unavailable	Semi Primitive Non Motorized	Semi Primitive Motorized	Roaded Natural	Rural	Total Available		
Piedra Blanca	5002	Sespe Frazier	0	860	860	0		47		47	907	32.2%
		Not in an IRA	0	1898	1898	0		10		10	1908	67.8%
		Total	0	2758	2758	0	0	57	0	57	2815	100.0%
San Cayetano	5132	Nordoff	0	2081	2081	0	10	58		68	2149	16.0%
	5002	Sespe Frazier	0	9431	9431	0	209	2		211	9642	71.7%
		Subtotal Roadless	0	11508	11508	0	222	61	0	283	11791	87.7%
		Not in an IRA	0	1630	1630	0	16	7		23	1653	12.3%
		Total	0	13138	13138	0	238	68	0	306	13444	100.0%
Sespe	5002	Sespe Frazier	0	5691	5691	0			99	99	5790	44.9%
		Not in an IRA	0	6086	6086	0			1006	1006	7092	55.1%
		Total	0	11777	11777	0	0	0	1105	1105	12882	100.0%
Rincon Creek	5130	White Ledge	0	763	763	0	489	501		990	1753	19.4%
		Not in an IRA	0	6007	6007	0	338	954		1292	7299	80.6%
		Total	0	6770	6770	0	827	1455	0	2282	9052	100.0%
South Cuyama	5134	Sawmill-Badlands	0	3406	3406	0	10532	5255		15787	19193	23.9%
	5124	Madulce-Buckhorn	0	305	305	0	99	114		213	518	0.6%
	5120	Fox Mountain	0	15865	15865	0	20801	870		21671	37536	46.8%
	5135	Cuyama	0	11194	11194	0	5677	367		6044	17238	21.5%
	5118	Spoor Canyon	0	131	131	0		122		122	253	0.3%
		Subtotal Roadless	0	30901	30901	0	37109	6728	0	43837	74738	93.1%
		Not in an IRA	0	2347	2347	0	1613	1560		3173	5520	6.9%
		Total	0	33248	33248	0	38722	8288	0	47010	80258	100.0%
La Brea Canyon	5116	Tapusquet Peak	0	4649	4649	0		1167		1167	5816	62.7%
	5117	La Brea	0	592	592	0	214	145		358	950	10.2%
	5115	Horseshoe Springs	0	587	587	0	95	37		132	720	7.8%
		Subtotal Roadless	0	5838	5838	0	309	1339	0	1648	7486	80.7%
		Not in an IRA	0	1039	1039	0	483	266		749	1787	19.3%
		Total	0	6877	6877	0	792	1605	0	2397	9273	100.0%
Figueroa Mountain	5279	De La Guerra	0	360	360	0	21	36		57	417	4.8%
		Not in an IRA	0	7540	7540	0	256	532		788	8328	95.2%
		Total	0	7900	7900	0	277	568	0	845	8745	100.0%
Lopez Canyon		Not in an IRA	0	2205	2205	0		52		52	2257	100.0%
Monroe Swell		Not in an IRA	0	570	570	0		30		30	600	100.0%
Total HOGPA's												
		Roadless	0	55921	55921	0	38150	8712	99	46961	102882	73.8%
		Not in an IRA	0	29322	29322	0	2706	3411	1006	7123	36444	26.2%
		Total HOGPA's	0	85243	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 would reach a maximum of 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 4-55 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 accompanying 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 which 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 4-56, 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 4-56: ALTERNATIVE 4 RECREATION STIPULATIONS

Stipulation Reference	Forest Plan Direction	Limited Surface Use – LSU [1/]
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 *Primitive* 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.

[1/] *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 4-57 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 are 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.

TABLE 4-57: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 4.

HOGPA / Non-HOGPA	Inventoried Roadless		Surface Occupancy Unavailable			Surface Occupancy Available					Total Acres	% of HOGPA
						ROS Class in Area (acres)						
	ID #	Name	No Lease (NL)	No Surface Occupancy (NSO)	Total Unavailable	Semi Primitive Non Motorized	Semi Primitive Motorized	Roaded Natural	Rural	Total Available		
Piedra Blanca	5002	Sespe Frazier	0	860	860	0	0	47	0	47	907	32.2%
		Not in an IRA	0	1898	1898	0	0	10	0	10	1908	67.8%
		Total	0	2758	2758	0	0	57	0	57	2815	100.0%
San Cayetano	5132	Nordoff	0	2081	2081	0	10	58	0	68	2149	16.0%
	5002	Sespe Frazier	0	9427	9427	0	213	2	0	215	9642	71.7%
		Subtotal Roadless	0	11508	11508	0	223	60	0	283	11791	87.7%
		Not in an IRA	0	1630	1630	0	16	7	0	23	1653	12.3%
		Total	0	13138	13138	0	239	67	0	306	13444	100.0%
Sespe	5002	Sespe Frazier	0	5747	5747	0	0	0	43	43	5790	44.9%
		Not in an IRA	0	6224	6224	0	0	0	868	868	7092	55.1%
		Total	0	11971	11971	0	0	0	911	911	12882	100.0%
Rincon Creek	5130	White Ledge	0	763	763	0	488	502	0	990	1753	19.4%
		Not in an IRA	0	6007	6007	0	335	957	0	1292	7299	80.6%
		Total	0	6770	6770	0	823	1459	0	2282	9052	100.0%
South Cuyama	5134	Sawmill-Badlands	0	4404	4404	0	9995	4794	0	14789	19193	23.9%
	5124	Madulce-Buckhorn	0	309	309	0	97	111	0	209	518	0.6%
	5120	Fox Mountain	0	16275	16275	0	20541	720	0	21261	37536	46.8%
	5135	Cuyama	0	11321	11321	0	5557	360	0	5917	17238	21.5%
	5118	Spoor Canyon	0	133	133	0		120	0	120	253	0.3%
		Subtotal Roadless	0	32442	32442	0	36190	6106	0	42296	74738	93.1%
		Not in an IRA	0	2656	2656	0	1493	1371	0	2864	5520	6.9%
		Total	0	35098	35098	0	37683	7477	0	45160	80258	100.0%
La Brea Canyon	5116	Tapusquet Peak	0	4720	4720	0	0	1096	0	1096	5816	62.7%
	5117	La Brea	0	612	612	0	206	131	0	338	950	10.2%
	5115	Horseshoe Springs	0	588	588	0	95	37		132	720	7.8%
		Subtotal Roadless	0	5920	5920	0	301	1264	0	1566	7486	80.7%
		Not in an IRA	0	1069	1069	0	479	239	0	718	1787	19.3%
		Total	0	6989	6989	0	780	1504	0	2284	9273	100.0%
Figueroa Mountain	5279	De La Guerra	0	360	360	0	21	36		57	417	4.8%
		Not in an IRA	0	7628	7628	0	232	468	0	700	8328	95.2%
		Total	0	7988	7988	0	253	504	0	757	8745	100.0%
Lopez Canyon		Not in an IRA	0	2205	2205	0	0	52	0	52	2257	100.0%
Monroe Swell		Not in an IRA	0	570	570	0	0	30	0	30	600	100.0%
Total HOGPA's		Roadless	0	57600	57600	0	37223	8015	43	45282	102882	73.8%
		Not in an IRA	0	29887	29887	0	2555	3134	868	6557	36444	26.2%
		Total HOGPA's	0	87487	87487	0	39778	11150	911	51839	139326	100.0%

4.5.9.5.6. Mitigation Measures and Stipulations (based on RFD)

Two additional recreation stipulations (Table 4-56) 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 accompanying map packet entitled *Recreation Stipulations Alternative 4; Emphasize Surface Resources* shows location of recreation stipulations for Alternative 4.

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 IRA's 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 4-58.

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.

TABLE 4-58: IRAS AVAILABLE FOR SURFACE OCCUPANCY BY ROS CLASS BY HOGPA FOR ALTERNATIVE 5.

HOGPA / Non-HOGPA	Inventoried Roadless		Surface Occupancy Unavailable			Surface Occupancy Available					Total Acres	% of HOGPA
						ROS Class in Area (acres)						
	ID #	Name	No Lease (NL)	No Surface Occupancy (NSO)	Total Unavailable	Semi Primitive Non Motorized	Semi Primitive Motorized	Roaded Natural	Rural	Total Available		
Piedra Blanca	5002	Sespe Frazier	793	67	860	0	0	47	0	47	907	32.2%
		Not in an IRA	1201	698	1899	0	0	9	0	9	1908	67.8%
		Total	1994	765	2759	0	0	56	0	56	2815	100.0%
San Cayetano	5132	Nordoff	669	1409	2078	0	10	61	0	71	2149	16.0%
	5002	Sespe Frazier	4124	5291	9415	0	218	9	0	227	9642	71.7%
		Subtotal Roadless	4793	6700	11493	0	228	70	0	298	11791	87.7%
		Not in an IRA	0	1610	1610	0	20	23	0	43	1653	12.3%
		Total	4793	8310	13103	0	248	93	0	341	13444	100.0%
Sespe	5002	Sespe Frazier	2529	3155	5684	0	0	0	106	106	5790	44.9%
		Not in an IRA	536	5546	6082	0	0	0	1010	1010	7092	55.1%
		Total	3065	8701	11766	0	0	0	1116	1116	12882	100.0%
Rincon Creek	5130	White Ledge	312	507	819	0	475	459	0	934	1753	19.4%
		Not in an IRA	659	5385	6044	0	338	917	0	1255	7299	80.6%
		Total	971	5892	6863	0	813	1376	0	2189	9052	100.0%
South Cuyama	5134	Sawmill-Badlands	0	3394	3394	0	10585	5214	0	15799	19193	23.9%
	5124	Madulce-Buckhorn	13	299	312	0	96	110	0	206	518	0.6%
	5120	Fox Mountain	1873	13973	15846	0	20838	852	0	21690	37536	46.8%
	5135	Cuyama	1630	9622	11252	0	5604	382	0	5986	17238	21.5%
	5118	Spoor Canyon	0	133	133	0	0	119	0	119	253	0.3%
		Subtotal Roadless	3516	27421	30937	0	37123	6677	0	43800	74738	93.1%
		Not in an IRA		2364	2364	0	1605	1551	0	3156	5520	6.9%
		Total	3516	29785	33301	0	38728	8228	0	46956	80258	100.0%
La Brea Canyon	5116	Tapusquet Peak	234	4423	4657	0	0	1159	0	1159	5816	62.7%
	5117	La Brea	0	592	592	0	214	144	0	358	950	10.2%
	5115	Horseshoe Springs	0	587	587	0	96	37	0	133	720	7.8%
		Subtotal Roadless	234	5603	5837		309	1340	0	1650	7486	80.7%
		Not in an IRA	17	1021	1038	0	482	267	0	749	1787	19.3%
		Total	251	6624	6875		791	1607	0	2398	9273	100.0%
Figueroa Mountain	5279	De La Guerra	0	364	364	0	17	36	0	53	417	4.8%
		Not in an IRA	1425	6145	7570	0	261	497	0	758	8328	95.2%
		Total	1425	6509	7934	0	278	533	0	811	8745	100.0%
Lopez Canyon		Not in an IRA	0	2187	2187	0	70	0	0	70	2257	100.0%
Monroe Swell		Not in an IRA	0	570	570	0	0	30	0	30	600	100.0%
Total HOGPA's												
		Roadless	12177	43817	55994	0	38152	8630	106	46888	102882	73.8%
		Not in an IRA	3838	25526	29364	0	2776	3294	1010	7079	36444	26.2%
		Total HOGPA's	16015	69343	85358	0	40928	11924	1116	53968	139326	100.0%

4.5.9.9. Analysis of Issues And Concerns

Thirty issues and concerns were introduced in the Affected Environment chapter. Table 4-59 shows the consequences of each alternative leasing scenario relative to these issues and concerns.

TABLE 4-59: ANALYSIS OF ISSUES AND CONCERNS

Issue/Concern	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a
1 Entire LPNF	See Chapter 4 regarding consequences of each alternative forest wide.	See Chapter 4 regarding consequences of each alternative forest wide.	See Chapter 4 regarding consequences of each alternative forest wide.	See Chapter 4 regarding consequences of each alternative forest wide.	See Chapter 4 regarding consequences of each alternative forest wide.	See Chapter 4 regarding consequences of each alternative forest wide.	See Chapter 4 regarding consequences of each alternative forest wide.
2 South forest area, Solvang to Lake Piru	Only impacts would be from existing leases in Sespe and San Cayetano areas in areas already disturbed. No additional significant impacts 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 any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irretrievable impacts.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irretrievable impacts.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irretrievable impacts
3 Figueroa Mt.	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 any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irretrievable impacts.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irretrievable impacts.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities. In addition, there may be off-site rehabilitation of existing irretrievable impacts.
4 Tepusquet Peak	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 the HOGPA are possible.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.

TABLE 4-59 CONTINUED: ANALYSIS OF ISSUES AND CONCERNS

Issue or Concern	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a
5 Lopez Reservoir	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 any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure 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 within the Highway 33 corridor as a result of oil and gas activities under any alternative.						
8 Matilija Canyon	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	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 in, or close to, this area that could cause direct or indirect impacts to recreational opportunities.	Potential indirect impact 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.	No surface occupancy is stipulated for Lake Casitas watershed mitigating any potentially significant impacts.	No surface occupancy is stipulated for Lake Casitas watershed mitigating any potentially significant impacts.	No surface occupancy is stipulated for Lake Casitas watershed mitigating any potentially significant impacts.	No surface occupancy is stipulated for Lake Casitas watershed mitigating any potentially significant impacts.	No surface occupancy is stipulated for Lake Casitas watershed mitigating any potentially significant impacts.
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	Scenic stipulations prevent impacts	Scenic stipulations prevent impacts	Scenic stipulations prevent impacts	Scenic stipulations prevent impacts	Scenic stipulations prevent impacts
12 Pine Mt.	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.						

TABLE 4-59 CONTINUED: ANALYSIS OF ISSUES AND CONCERNS

Issue or Concern	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a
13 Arroyo Seco watershed	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.						
14 Upper San Antonio River	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.						
15 Santa Lucia, Mem. Park	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.						
16 Ballinger Canyon	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.						
17 Rock Front	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.						
18 Kerry Canyon	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.						
19 Tinta Trail	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.						
20 Montecito viewshed	No projected oil and gas activities in, or close to, this area that could cause direct or indirect impacts to recreational opportunities or scenic viewshed under any alternative.						
21 Santa Barbara & Ventura County	Ventura County contains Sespe, San Cayetano, most of Rincon Creek and the eastern end of the South Cuyama HOGPA's. Santa Barbara County contains Figueroa Mt., La Brea Canyon, most of South Cuyama, and the western end of Rincon Creek HOGPA's. Refer to Chapter 4 and the specific HOGPA's for each alternatives consequences.						
22 San Rafael Range	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 Figueroa Mt. HOGPA may be detectable from the southern slopes of the San Rafael Range and impact dispersed recreation opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any 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 any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.

TABLE 4-59 CONTINUED: ANALYSIS OF ISSUES AND CONCERNS

Issue or Concern	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a
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 any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.
25 Lake Cachuma	The entire Santa Ynez watershed in withdrawn from mineral entry. Consequently there would not be any impact to Lake Cachuma under any alternative.						
26 Senior Canyon	The San Cayetano HOGPA is within two miles of Senior Canyon. There would be one new well on an existing well pad. This should 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 nearby San Cayetano HOGPA.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.	Lease stipulations will assure any activities under new leases will not add any significant impacts to recreational opportunities.
27 "the Indian"	No significant impacts would occur to "the Indian" as a result of oil and gas activities under any alternative.						

TABLE 4-59 CONTINUED: ANALYSIS OF ISSUES AND CONCERNS

Issue or Concern	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 4a	Alternative 5	Alternative 5a
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 HOGPA, on LPNF in Monterey County. RFD projected oil and gas activities for the Monroe Swell HOGPA would not have significant direct impacts but may indirectly impact the Ventana Wilderness.	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 HOGPA, on LPNF in Monterey County. No oil and gas activities are projected for the Monroe Swell HOGPA under Alternative 3.	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 HOGPA, on LPNF in Monterey County. No oil and gas activities are projected for the Monroe Swell HOGPA under Alternative 4.	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 HOGPA, on LPNF in Monterey County. No oil and gas activities are projected for the Monroe Swell HOGPA under Alternative 4a.	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 HOGPA, on LPNF in Monterey County. No oil and gas activities are projected for the Monroe Swell HOGPA under Alternative 5.	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 HOGPA, on LPNF in Monterey County. No oil and gas activities are projected for the Monroe Swell HOGPA under Alternative 5a.
29a Wilderness	Wilderness Areas are withdrawn from mineral entry and will not be directly impacted.						
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 which ROS class the development occurred in.	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 3.	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 4.	All IRA's are under no surface occupany 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 under no surface occupany stipulation and thus will not be directly impacted.