5.0 PROJECT ALTERNATIVES ANALYSIS

The California Environmental Quality Act (CEQA) requires the California State Lands Commission (CSLC), as the CEQA Lead Agency, to analyze alternatives to a proposed project that could feasibly achieve the objectives of the project while substantially reducing significant environmental effects. As noted in Section 1, Introduction, and described in Section 2, Project Description, the proposed Revised PRC 421 Recommissioning Project (Project) reviewed in this Environmental Impact Report (EIR) is based on an application by Venoco, Inc. (Venoco), the lessee and operator of State Oil and Gas Lease PRC 421 (PRC 421), to return oil production from an existing shoreline well (Well 421-2) that was shut-in in 1994 and process PRC 421 crude oil emulsion at the Ellwood Onshore Facility (EOF) in the City of Goleta, instead of on shoreline piers as was the case when the CSLC assigned the lease to Venoco in 1997.

Section 5 of this EIR examines the potential environmental impacts of the alternatives to the proposed Project. This section describes the alternatives screening methodology, identifies alternatives eliminated from further consideration, and provides detailed descriptions and impact analyses of each of the alternatives being considered to the Project. Section 6.4 provides a comparison of the alternatives with the proposed Project and discusses the Environmental Superior Alternative.

5.1 SELECTION OF ALTERNATIVES

5.1.1 Guidance on Alternatives Development and Evaluation

An important aspect of the environmental review process is the identification and assessment of reasonable alternatives that have the potential to avoid or reduce the significant impacts of a proposed project to allow for a comparative analysis for consideration by decision-makers. The State CEQA Guidelines provide the following guidance for evaluating alternatives in EIRs.

- An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible. (Guidelines § 15126.6, subd. (a)).

- The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. (Guidelines § 15126.6, subd. (b)).

- In selecting a range of potential reasonable alternatives to the proposed project, the Lead Agency shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or
5.0 Alternatives Analysis

more of the significant effects. Among the factors that a Lead Agency may use to
eliminate alternatives from detailed consideration are: (i) failure to meet most of
the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant
environmental impacts. (Guidelines § 15126.6, subd. (c)).

• The EIR shall include sufficient information about each alternative to allow
meaningful evaluation, analysis, and comparison with the proposed project. If an
alternative would cause one or more significant effects in addition to those that
would be caused by the project as proposed, the significant effects of the
alternative shall be discussed, but in less detail than the significant effects of the
project as proposed. (Guidelines § 15126.6, subd. (d)).

The CEQA also requires an EIR to evaluate a “no project” alternative. The purpose of
describing and analyzing a no project alternative is to allow decision-makers to compare
the impacts of approving the proposed project with the impacts of not approving the
project. The analysis of the no project alternative must discuss the existing conditions at
the time the Notice of Preparation (NOP) is published, as well as what would be
reasonably expected to occur in the foreseeable future if the project were not approved.

5.1.2 Alternatives Screening Methodology

Alternatives to the proposed Project were identified, screened, and either retained for
further analysis or eliminated as described below. Alternatives were developed based
on: information provided by the Applicant (Venoco); input received from the EIR Joint
Review Panel (JRP) represented by the CSLC, California Coastal Commission (CCC),
and City of Goleta staffs; and comments received from the public and local jurisdictions
during the public review and comment period on the 2013 Draft EIR for the proposed
Project. The Alternatives screening process consisted of the following steps:

Step 1: Define the alternatives to allow comparative evaluation.

Step 2: Evaluate each alternative in the context of the following criteria:

• The extent to which the alternative would accomplish most of the basic goals and
objectives of the Project (the Project objective is identified in Section 1.2);

• The potential feasibility of the alternative, taking into account site suitability,
economic viability, availability of infrastructure, General Plan consistency, and
consistency with other applicable plans and regulatory limitations;

• The extent to which the alternative would avoid or lessen one or more of the
identified significant environmental effects of the Project; and

• The requirement of the State CEQA Guidelines to consider a “no project”
alternative and to identify, under specific criteria, an “environmentally superior”
alternative. For example, pursuant to State CEQA Guidelines section 15126.6,
subdivision (e), “if the environmentally superior alternative is the ‘no project’
alternative, the EIR shall also identify an environmentally superior alternative
among the other alternatives.”

Step 3: Determine the suitability of the proposed alternative for full analysis in the EIR
based on Steps 1 and 2 above. Alternatives considered to be unsuitable, were
eliminated, with appropriate justification, from further consideration.

Feasible alternatives that did not clearly offer the potential to reduce significant
environmental impacts and infeasible alternatives were removed from further analysis.
In the final phase of the screening analysis, the environmental advantages and
disadvantages of the remaining alternatives were carefully weighed with respect to their
potential for overall environmental advantage, technical feasibility, and consistency with
Project and public objectives.

If an alternative clearly does not provide any environmental advantages as compared to
the proposed Project, it was eliminated from further consideration. At the screening
stage, it is not possible to evaluate potential impacts of the alternatives or the Project
with absolute certainty. However, it is possible to identify elements of the proposed
Project that are likely to be the sources of impact. A preliminary assessment of potential
significant effects of the Project resulted in identification of the following impacts:

- Potential increase in fugitive air pollutant emissions (Air Quality);
- Potential increase in the risk of an oil spill from oil production or pipeline
  transportation that would affect terrestrial biological resources, marine biological
  resources, water quality, and commercial and recreational fishing (Marine
  Biological Resources, Water Resources);
- Potential safety hazards associated with incremental increases in oil production
  and transportation (Public Services, Safety);
- Potential increase in the risk of an oil spill from pipeline transportation that would
  affect recreation (other than fishing) in the vicinity of the proposed Project
  (Recreational Resources); and
- Potential increase in demand for fire protection services (Public Services).

For the screening analysis, technical and regulatory feasibility of various potential
alternatives was assessed at a general level. Specific feasibility analyses were not
needed for this purpose. Any alternative with infeasible characteristics was disregarded.
The assessment of feasibility was conducted by using “reverse reason” to identify
anything about the alternative that would be infeasible on technical or regulatory
grounds. CEQA does not require elimination of a potential alternative based on cost of
construction and operation/maintenance. For the proposed Project, characteristics used
to eliminate alternatives from further consideration included:
5.0 Alternatives Analysis

- Limited effectiveness in reducing Project environmental impacts;
- Engineering feasibility and safety;
- Permitting feasibility;
- Potential adverse effects on marine and terrestrial resources;
- Potential effects on public health and safety;
- Potential for inconsistency with adopted agency plans and policies; and
- Reasonability when compared to other alternatives under consideration.

Information gathered during the original 2007 Draft EIR public comment period, the 2013 Draft EIR public comment period, and following the CSLC’s consideration of the Final EIR in April 2014 led to further refinement of alternatives considered to the Project in this Recirculated Draft Final EIR.

5.1.3 Summary of Screening Results

Those alternatives found to be technically feasible and consistent with the Applicant’s Project objective were reviewed to determine if the alternative had the potential to reduce the Project’s environmental impacts. Table 5-1 summarizes the evaluation of potential alternatives that were either eliminated from further consideration (see rationale in Section 5.2, Alternatives Eliminated from Further Consideration), or fully described and evaluated in detail (see Section 5.3, Alternatives Evaluated in this EIR).

Table 5-1. Summary of Alternatives Screening Results

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Alternatives Eliminated from Further Consideration</th>
<th>Alternatives Evaluated in this EIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling from the Ellwood Onshore Facility</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Drilling from Platform Holly</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Condensed Production Schedule</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Offshore Oil Processing on Platform Holly</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Transportation of Production By Truck</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Recommissioning Using Historic Production Methods</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>No Production Alternative with Pressure Testing</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Alternative Energy Sources</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>No Project Alternative</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>No Production/Quitclaim State Oil and Gas Lease PRC 421</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Reinjection at Platform Holly</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Processing PRC 421 Oil at Las Flores Canyon¹</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

¹ As discussed in Section 1, Introduction, at its April 23, 2014, meeting, the Commission directed its staff to fully evaluate the Processing PRC 421 Oil at Las Flores Canyon Alternative in the July 2014 Recirculated Draft EIR.
5.0 Alternatives Analysis

5.2 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

5.2.1 Drilling from the EOF

Under the Drilling from the EOF Alternative, Venoco would produce the Ellwood Field by installing a drilling rig at the EOF. Wells 421-1 and 421-2 would be shut-in, and existing infrastructure at PRC 421 would be subsequently decommissioned with its components abandoned in place, removed, or a combination thereof. No production would take place at PRC 421 from surf zone facilities.

This alternative would reduce construction- and operation-related impacts to marine resources, aesthetics, and the risk of a marine oil spill from surf zone production would be greatly reduced. Abandonment-related impacts, such as grading, excavation, and export and cleanup of existing facilities and contaminated soils would be similar to those associated with the proposed Project for Pier 421-1; however, under this alternative, both wells and Piers 421-1 and 421-2 would be abandoned and removed.

This alternative was determined to be infeasible from three aspects:

- no available space;
- system safety; and
- conflicts with City of Goleta codes.

A drilling rig and associated equipment required to support the anticipated drilling activities would typically require an area measuring 100 feet by 200 feet, or about 0.5 acre. This amount of space is not available on Venoco’s EOF property site. The entire site is approximately 4.5 acres with processing equipment distributed around the entire site, which would create system safety conflicts between EOF operations and any new drilling operations. In addition, the Goleta Municipal Code, section 35-160 et seq. prohibits any enlargement, expansion or extension of the EOF’s nonconforming use. As a result of the space restrictions that limit the technical feasibility of the alternative, the potential systems safety hazards of the facility, and conflicts with the City’s code, the Drilling from the EOF Alternative was eliminated from further evaluation.

5.2.2 Drilling from Platform Holly

Under this alternative, the Ellwood Oil Field would be produced from Platform Holly, instead of using the shoreline well on Pier 421-2, and the PRC 421 piers would be immediately abandoned and existing related infrastructure would be left in place, removed, or a combination thereof. Decommissioning would take place according to CSLC lease requirements and would require the preparation of an Abandonment and Restoration Plan to be approved by the CSLC and the City of Goleta. Decommissioning of the PRC 421 facilities would also require a coastal development permit from the CCC.
5.0 Alternatives Analysis

This alternative would reduce or eliminate many of the impacts associated with the proposed Project related to accidental oil spills from the PRC 421 location and impacts to the marine and terrestrial environment in the PRC 421 vicinity. Abandonment-related impacts, such as grading, excavation, export and cleanup of existing facilities and contaminated soils, would be similar to the proposed Project.

This alternative was eliminated from further consideration because it is technically infeasible and could increase the risk of an offshore oil spill. In order to produce the Ellwood Oil Field, a well would need to be drilled to a vertical depth of 3,000 feet with a 12,600-foot horizontal displacement. This scenario is approaching the limits of current drilling technology and additional geologic concerns are present that make it infeasible to drill from Platform Holly. Specifically, the well would cross a long section of the Sisquoc and Rincon formations and a very large thrust fault. Therefore, the well would be susceptible to loss of circulation, structural instability, and loss of directional control. This loss of directional control combined with the relatively small target and the distance to the well render this option technically infeasible. Finally, many of the original wells on the Ellwood Oil Field, which was first developed in 1929, were drilled without accurate deviation surveys, meaning that the exact locations of those well bores are unknown, and that new wells could hit one of the old wells. As a result, the Drilling from Platform Holly Alternative was removed from further consideration due to the increased risk for oil spills and the technical difficulties associated with producing from such a distance and depth.

5.2.3 Condensed Production Schedule

Under this alternative, an additional well would be drilled into the Ellwood Field with the intent to accelerate production and to shorten the Project’s life. This would potentially reduce the long-term risk of oil spills and associated impacts to water, land use, aesthetics, safety, and terrestrial and marine biological resources.

While compressing the production life might reduce the long-term risk from an oil spill, adding a well to the shore zone facilities may not necessarily accelerate production or reduce the Project duration. In addition, the actions needed to drill an additional shore zone well would have more significant short-term impacts to water quality, marine and terrestrial biological resources, air quality, geologic resources, hazardous materials, noise, and aesthetic resources. Therefore, this alternative was eliminated from further consideration.

5.2.4 Offshore Oil Processing on Platform Holly

Under this alternative, oil from PRC 421 would be piped offshore to Platform Holly for processing, commingled with Platform Holly oil, returned to shore and treated at the EOF with the commingled Platform Holly oil, and transported through the Line 96 Pipeline to the Plains All American Pipeline, L.P. (PAAPLP) Coastal Pipeline west of

Revised PRC 421 Recommissioning Project 5-6 November 2014 Final EIR
Las Flores Canyon (LFC). Since there is no available pipeline to transport PRC 421 oil to Platform Holly, construction of a new 4-inch pipeline would be required from a location near the EOF to Platform Holly, a distance of approximately 15,000 feet.

This alternative would require the offshore transportation of gross three-phase production fluids (water, oil, and gas), which is contrary to CSLC “best practices” due to an inability to properly detect leaks in this type of flow. Consequently, the pipeline running from PRC 421 to Platform Holly would not be provided with leak detection comparable to any other offshore pipelines in the Santa Barbara Channel.

Any new pipeline would also need to cross the surfzone to reach Platform Holly. If the pipeline was routed directly from the PRC 421 piers to Platform Holly, the transition would have to be made via an “open cut” process across and through the surf zone because the proximity of the piers to the bluff prevents the use of Horizontal Directional Drilling (HDD) to allow for a buried surf zone crossing. In order to use HDD technology, the new oil pipeline would first have to be routed westerly in the existing PRC 421 access road toward the existing EOF access road, to provide suitable laydown space for HDD equipment. This would also require a temporary workspace area within Sandpiper Golf Course or in the adjacent landscaped area.

Once offshore, the pipeline would be routed to Platform Holly where a new J-tube (a vertical tube connecting the seafloor pipeline to the platform pipeline) would be installed to route the pipeline onto the platform production deck. Required new facilities on Platform Holly would include a new metering skid to control flows, plus a pig receiver to allow the new pipeline to be cleaned, a three-phase production separator for the incoming fluid, and a new flow line and controllers to introduce PRC 421 oil streams into the existing production processing train on Platform Holly. There is no room on Platform Holly for these facilities. Room for equipment could possibly be made available by cantilevering a deck off the north or south side of the platform; however, construction of this additional deck spacing would require expansion of the platform (a minimum of 250 square feet of additional deck space). Due to structural limitations with the existing platform jacket, this deck would more than likely require large braces attached to the existing platform jacket for support. These braces would interfere with the ability to land boats to the existing boat docks on the platform.

Oil from PRC 421 does not require processing for hydrogen sulfide (H₂S) removal. Under this alternative, however, PRC 421 oil would be commingled with Platform Holly oil then transported to the EOF in the existing oil emulsion pipeline. Upon entering the EOF, the oil stream would first be routed through existing heat exchangers to help warm the oil for processing, then through one or more existing heater treaters for removal of any residual water. Water removed would be impounded and disposed of through an existing high-pressure injection pump and disposal well WD-1. Oil would then be routed
through the existing H₂S stripper towers to remove H₂S before entering into the new Line 96 Pipeline for transport to the west of LFC.

Because this alternative would move processing away from the PRC 421 shore zone location, impacts related to accidental oil spills may be reduced within the shore zone environment. Pier 421-2, however, would remain in place for the duration of production to pump oil from Well 421-2 to Platform Holly.

Because of the operation of an offshore pipeline without a leak detection system, the limited space on Platform Holly for additional equipment to handle PRC 421 oil, and the impacts to the marine environment related to the platform expansion and construction of a new 3-mile pipeline to transport PRC 421 oil to Platform Holly, this alternative has no environmental benefits over the proposed Project and was eliminated from further consideration.

5.2.5 Transportation of Production by Truck

Under this alternative, production would resume at PRC 421 as described in the proposed Project; however, recovered crude oil would be transported via tanker trucks on local freeways rather than via Line 96 pipeline to the PAAPLP Coastal Pipeline west of LFC. Under this alternative, an industry-standard truck loading rack would be constructed at the EOF to accommodate the necessary truck-loading requirements, including secondary containment and other features required by Federal, State and local regulations. Transfer of crude oil from the trucks at the receiving facility might also require installation of an equivalent industry-standard truck unloading rack and storage tanks, depending on the existing infrastructure at the receiving facility.

For example, an alternative of trucking oil from PRC 421 to the Rincon Onshore Separation Facility (ROSF), located just east of Carpinteria, would initially involve up to five tandem trucks (each carrying approximately 160 barrels of oil) traveling about 32 miles one way per day, declining to three trucks per day during years 3 through 5 and one to two trucks per day during the later years of Project production. From the ROSF, the crude oil would be commingled with production from the ROSF and shipped via an existing 22-inch pipeline to the Shell and Conoco Phillips (TOSCO) terminal in Ventura Harbor. From Ventura, Project-related crude oil would be transported via several existing common carrier pipelines that connect to Los Angeles area refineries. Such increases in trucking between PRC 421 and ROSF, or other receiving facility, would incrementally contribute to potential safety impacts on area roadways with potential for accidents and oil spills, associated impacts to hydrology, water quality and terrestrial and marine biology, along with increased emissions when compared to transport via the new Line 96 pipeline. Thus, this alternative could create incrementally more severe environmental impacts than transport via pipeline under the proposed Project.
In addition, Venoco had previously submitted a Temporary Trucking Application to the City of Goleta (City Case No. 06-186) and an application for a Limited Exception Determination (LED) which would exempt Venoco from the provisions of the City’s nonconforming use requirements under the Goleta Municipal Code, section 35-160 et seq. The City determined that because additional infrastructure would be required to accommodate loading of oil onto trucks, trucking of oil was inconsistent with several of the criteria that must be satisfied for approval of an LED, as it would result in an expansion or increase in overall intensity of use beyond the existing permitted use. Following the City of Goleta’s initial rejection of the trucking proposal, Venoco elected to withdraw its application for City permits. Therefore, this alternative was eliminated from further consideration because of demonstrated inconsistency with the City of Goleta’s Municipal Code, Venoco’s withdrawal of the application for permits, and because this alternative has no environmental benefits over the proposed Project.

5.2.6 Recommissioning Using Historic Production Methods

Under this alternative, production would resume at PRC 421 using essentially the configuration that was in place at the time the wells were shut-in in 1994. In contrast, the No Project Alternative would incorporate new technologies to comply with current industrial and environmental standards. Historic operations at this facility involved using a natural gas-fired internal combustion engine to power the pump at Pier 421-2. Produced oil and water emulsion was then separated using a Free Water Knockout (FWKO) system, and produced oil and insignificant quantities of gas bypassed the EOF and were delivered to market directly via the existing 6-inch line to the old Line 96 segment for delivery to the Ellwood Marine Terminal (EMT). Produced water was stored in a tank on Pier 421-1 and periodically reinjected into the underlying formation via Well 421-1.

This alternative would include the following components that would differ from the proposed Project:

- Installation and operation of a new gas-fired internal combustion engine and an above-ground pump in Pier 421-2; and
- Installation of a FWKO unit, storage tank, and pump for water reinjection on Pier 421-1.

Unlike the proposed Project, Pier 421-1 and Well 421-1 would not be decommissioned until after production stops. Future decommissioning of the remaining facilities at PRC 421 would be governed by an Abandonment and Restoration Plan to be prepared by Venoco and approved by the CSLC, CCC, and City of Goleta.

Because this alternative would still include modification and reactivation of surf zone oil production facilities, oil processing at the PRC 421 piers, and pipeline transportation of produced oil, the impacts associated with the proposed Project would still apply.
addition, the installation of the storage tank would substantially increase aesthetic impacts, and the operation of a gas-fired internal combustion engine on Pier 421-2 would substantially increase air quality impacts as compared to the proposed Project. Therefore, this alternative has no environmental benefits over the proposed Project or the No Project Alternative and was eliminated from further consideration.

5.2.7 No Production Alternative with Pressure Testing

This alternative is not applicable as it does not apply to the Applicant. If Venoco does not produce the lease, the CSLC has no nexus to require Venoco to pressure test the reservoir. Any pressure testing of the reservoir would be at the expense of the State. Therefore, this alternative was eliminated from further consideration.

5.2.8 Alternative Energy Sources

This alternative would be to replace oil produced from PRC 421 with equivalent energy production from clean or alternative energy sources. Energy production from these sources could include methods such as constructing solar panel fields, wind turbine farms, wave energy devices, or producing geothermal resources. However, PRC 421, as currently assigned to Venoco, contractually obligates Venoco to produce oil from the lease premises. As a result, Venoco’s Project objective has been appropriately defined as the production of oil from PRC 421 consistent with its lease. Consideration of clean or alternative energy sources as an alternative to the Project would neither meet the stated project objective nor would it release Venoco’s obligations to produce oil from PRC 421; therefore, this alternative was eliminated from further consideration.

5.3 ALTERNATIVES EVALUATED IN THIS EIR

Four alternatives, including the No Project Alternative, have been identified for full evaluation and comparison to the proposed Project (see Table 5-1 above). Table 5-2 provides a summary of the major components of the proposed Project and the three build alternatives. Of the proposed Project and three build alternatives, only the Processing PRC 421 Oil at Las Flores Canyon Alternative would require substantially more new construction and involve locations remote from the primary Project area, which would introduce many more impacts compared to the Project and other alternatives (see Section 5.3.4 below).
### Table 5-2. Summary of Major Project Components for the Proposed Project and Build Alternatives

<table>
<thead>
<tr>
<th>Location/Major Project Component</th>
<th>Proposed Project</th>
<th>Project Alternatives</th>
<th>Processing PRC 421 Oil at LFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>New railing/wood decking</td>
<td>Pier 421-2 only</td>
<td>No Project Alternative, Pier 421-2 only</td>
<td>Pier 421-2 only&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Well and Pier 421-1</td>
<td>Decommissioned</td>
<td>Used for water injection, Decommissioned</td>
<td>Decommissioned&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Well 421-2</td>
<td>ESP</td>
<td>ESP</td>
<td>ESP</td>
</tr>
<tr>
<td>Pier 421-2</td>
<td>No major infrastructure required</td>
<td>GLCS and LLCS</td>
<td>GLCS and LLCS</td>
</tr>
<tr>
<td>Oil processing</td>
<td>Existing EOF</td>
<td>LLCS on Pier 421-2</td>
<td>LLCS on Pier 421-2</td>
</tr>
<tr>
<td>Gas processing</td>
<td>Existing EOF</td>
<td>GLCS on Pier 421-2</td>
<td>GLCS on Pier 421-2</td>
</tr>
<tr>
<td>Oil flowline</td>
<td>3&quot; to EOF (0.45 mi.)</td>
<td>2&quot; to Line 96 (0.45 mi.)</td>
<td>2&quot; to Line 96 (0.45 mi.)</td>
</tr>
<tr>
<td>Water/gas flowline</td>
<td>None</td>
<td>2&quot; to Well 421-1</td>
<td>2&quot; to the 4&quot; utility line to Platform Holly</td>
</tr>
<tr>
<td>Oil pipeline</td>
<td>Existing Line 96 to PAAPLP</td>
<td>Same as proposed</td>
<td>Same as proposed</td>
</tr>
<tr>
<td>Oil pipeline leak detection system</td>
<td>Volumetric-based and low pressure switches</td>
<td>Same as proposed</td>
<td>Same as proposed</td>
</tr>
<tr>
<td>Power cable</td>
<td>EOF to Pier 421-2</td>
<td>Same as proposed</td>
<td>Same as proposed</td>
</tr>
<tr>
<td>Communication system</td>
<td>EOF to Pier 421-2</td>
<td>Same as proposed</td>
<td>Same as proposed</td>
</tr>
</tbody>
</table>

ESP = electric submersible pump; GLCS = Gas-Liquid Cyclone Separator; LLCS = Liquid-Liquid Cyclone Separator; PAAPLP = Plains All American Pipeline, Limited Partners

<sup>a</sup> Only if a Class II Underground Injection well can be constructed at LFC. If not, Well 421-1 would be used for water injection, new railing and wood decking would apply to Pier 421-1, and a new produced water pipeline back to Pier 421-1 for injection would be required.

<sup>b</sup> Tightlining is the ability to operate the 3-phase pipeline without flow breakage, i.e., tanking production and providing a dedicated oil shipping pump.
Sections 5.3.1 through 5.3.4 describe and analyze each of these four alternatives and their associated impacts in relation to the proposed Project. Analysis of the Processing PRC 421 Oil at Las Flores Canyon Alternative includes relevant impacts assessed in the 2011 Ellwood Pipeline Company Line 96 Modification Project EIR (Line 96 EIR) and the 1984 Final EIR for Santa Ynez Unit/Las Flores Canyon Development and Production Plan (SYU/LFC EIR). Relevant impacts and mitigation measures (MMs) from these documents are incorporated by reference as part of this analysis (per State CEQA Guidelines § 15152), and are summarized in this EIR and included in their entirety in Appendix I. Section 6.4 compares the impacts of the proposed Project and alternatives (see Tables 6-2 and 6-3) and identifies the Environmentally Superior Alternative.

5.3.1 No Project Alternative

Description

Whereas Venoco’s proposed Project includes processing PRC 421 oil at the EOF, the No Project Alternative is defined as Commission agreement (pursuant to Cal. Code Regs., tit. 2, div. 3, ch. 1, § 2121) that Venoco has taken adequate corrective measures to repair the infrastructure associated with PRC 421, such that Venoco is obligated to resume production and processing of oil from PRC 421 under conditions similar to those in existence in 1994, when the well was shut-in for corrective action. Elements of the No Project Alternative are based on the following:

- The Commission assigned the PRC 421 lease to Venoco in July 1997, which provides Venoco the legal right to produce the lease (lease originally issued in 1929; see Table 2-1 for lease history) and

- When the Commission determines that adequate corrective measures have been taken and operations may be resumed, Venoco may produce PRC 421 by processing oil on Pier 421-2 and using Well 421-1 on Pier 421-1 for produced water disposal.

Venoco’s restart of production on the lease would include incorporating modern production and safety technologies to comply with current industrial and environmental standards. Venoco would install a new Gas-Liquid Cyclone Separator (GLCS) and a new Liquid-Liquid Cyclone Separator (LLCS) at Pier 421-2 to separate produced gas and water from oil (Figure 5-1).

2 California Code of Regulations, Title 2, Division 3, section 2121 states:

The lessee shall suspend any drilling and Production operations, except those which are corrective, protective, or mitigative, immediately in the event of any disaster or of contamination or pollution caused in any manner or resulting from operations under a lease. Such drilling and Production operations shall not be resumed until adequate corrective measures have been taken and authorization of resumption of operations has been made by the commission.

3 A “no production alternative,” under which Venoco would be prohibited from resuming commercial production of PRC 421, has been added to this EIR as discussed and analyzed in Section 5.3.2 below.
Note: The boundary of the City of Goleta Jurisdiction is located at the mean high tide line.

LEGEND
- New 2-Inch Flowline inside Upgraded and Extended Existing 6-Inch Pipeline
- Two New 2-Inch Flowlines (water/gas; oil) inside New Double-Walled Line
- Cables – power and communication
- Line 96
- City of Goleta Jurisdictional Boundary

No Project Alternative [Revised]
There was no detectable gas production when Well 421-2 produced in 2001 for a short-term period to conduct emergency depressurization. However, the GLCS is designed based on typical properties for California oils at the well depth, for which the gas-oil ratio is estimated to be 100 standard cubic feet per stock tank barrel (SCF/STB). The GLCS is a compact vertical vessel with a tangential nozzle located near the top that subjects incoming fluids to a hydraulically created vortex and centrifugal forces, causing the heavier liquid particles to separate and thus obtaining split liquid and gas streams. The LLCS, which is used to separate out the water, is a similar vessel that would be installed next to the GLCS.

The well on Pier 421-1 would be returned to service as a water and gas injection well using equipment to inject and dispose of water and gas that are separated from the gross fluid produced out of Well 421-2. The new electric submersible pump (ESP) in Well 421-2 would provide enough pressure to inject oil into Line 96 at up to 1,440 pounds per square inch gauge (psig), and an additional pump would be installed, after the GLCS, to inject up to 1,000 barrels of water per day (BWPD) into Well 421-1. To prevent reverse flow from the well, Venoco would need to install a flow safety valve (FSV) as part of the wellhead piping. New wood-plank decking would be installed for safety and aesthetic purposes. Oil production from Pier 421-2 would be directly transported into Line 96 at a tie-in point at the EOF. Once the oil ties into Line 96, it would be commingled with Holly production and transported to LFC where Line 96 ties in with the PAAPLP pipeline system.

Resumption of production under this alternative would include the following:

- Installation of new decking and railings on Piers 421-1 and 421-2;
- Installation of a downhole ESP, stainless steel equipment enclosures, and new oil separation equipment (GLCS and LLCS) on Pier 421-2;
- Return of Well 421-1 to service as a water and gas injection well;
- Installation of a new double-walled line between Wells 421-2 and 421-1, and installation of two new 2-inch flowlines (one for water and gas, one for oil) inside the new double-walled line;
- Installation of one new 2-inch oil flowline (inside the upgraded existing 6-inch line) connecting PRC 421 to Line 96;
- Upgrades to the existing 6-inch line from Pier 421-1 to Line 96;
- Installation and operation of buried power cables to Pier 421-2 to operate the well and associated control systems;
- Installation of a communication system between PRC 421-2 and the EOF;
- Installation of a surveillance camera on Pier 421-2 that would monitor the piers and would provide live video feed displayed in the EOF Control Room;
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- Installation of a Lease Automatic Custody Transfer (LACT) system for Well 421 oil before introduction to Line 96; and
- Reactivation of the oil well on Pier 421-2, with projected production as indicated for the Project in Section 2.4.1, Volumes and Throughput.

As part of this alternative, the existing 6-inch line would be hydrotested to 100 psig and internally lined with a new plastic coating. The 6-inch line would be protected against external corrosion by enhancing the impressed current cathodic protection system on the Platform Holly pipelines to include the PRC 421 6-inch shipping line. After the upgrades to the 6-inch pipeline preparation are complete, a new 2-inch steel coiled or non-metallic (e.g., fiberglass) flowline would be inserted inside the existing 6-inch line to transport oil to Line 96. Additionally, a double-walled line would replace an existing 2-inch flowline between Well 421-2 and Well 421-1. Two new 2-inch flowlines (one for water and gas, one for oil) would be installed inside the new double-walled line.

Electricity would be provided to Pier 421-2 via two cables buried within a 30-inch-deep, 12-inch-wide, 2,500-foot-long trench located within the easement through Sandpiper Golf Course and down the dirt access road.

This alternative includes many levels of equipment requirements, testing, maintenance, and safety measures in order to prevent accidental releases to the coastal environment. The main safety monitoring system for PRC 421 would be located at the EOF and would include monitors at Wells 421-1 and 421-2. In addition to the monitoring system, additional safety measures are included in pipelines and the workover rig. Project components that will occur within the Goleta city limits (e.g., installation of the power cable, upgrades to the 6-inch line) will require Venoco to obtain the appropriate city permits.

Environmental Impact Analysis

The impacts and MMs from the No Project Alternative are similar to the proposed Project, with the exception of those impacts associated with processing oil on Pier 421-2 and returning Pier and Well 421-1 to use as an injection well. Table 5-3 provides a summary of the impact and mitigation measure differences between the two alternatives. As part of the No Project Alternative, there are 12 project impact differences and 14 MMs that would be modified, in response to the production and processing of oil on Pier 421-2 and the disposal of waste water and gas on Pier 421-1, in comparison to the proposed Project. All other project impacts and MMs not identified in Table 5-3 are the same for both the proposed Project and the No Project Alternative.
### Table 5-3. No Project Alternative Comparison to the Proposed Project

<table>
<thead>
<tr>
<th>Impacts of Proposed Project</th>
<th>No Project Alternative</th>
<th>Mitigation Measure (MM) Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact GEO-1</td>
<td>Impact includes Pier 421-1 and associated infrastructure</td>
<td>MM GEO-1a MM GEO-1b MM GEO-1c MM GEO-1d MMs modified to include Pier 421-1</td>
</tr>
<tr>
<td>Impact GEO-3 Impact GEO-4 Impact S-2 Impact S-4</td>
<td>Impacts include Pier 421-1</td>
<td>MM GEO-3 MM GEO-4c MM S-2a MM S-3 MM S-4b MM S-4d MMs modified to include Pier 421-1</td>
</tr>
<tr>
<td>Impact S-5</td>
<td>Impact modified for connection to Line 96</td>
<td></td>
</tr>
<tr>
<td>Impact S-8</td>
<td>Impact modified for processing on 421-2 and Line 96 connection</td>
<td></td>
</tr>
<tr>
<td>Impact HAZ-1</td>
<td>Impacts include Pier 421-1</td>
<td>MM HAZ-1a MM modified for PRC 421 Pier operations; no Pier 421-1 decommissioning MM HAZ-1c MM modified to remove Pier 421-1 removal/decommissioning component MM HAZ-1d MM modified to remove Pier 421-1 removal/decommissioning component and adding construction activities for Pier 421-1</td>
</tr>
<tr>
<td>Impact HAZ-2</td>
<td>Impact includes Pier 421-1</td>
<td></td>
</tr>
<tr>
<td>Impact WQ-3</td>
<td>Impact includes Pier 421-1</td>
<td>MM WQ-3a MM modified for connection to Line 96</td>
</tr>
<tr>
<td>Impact MBIO-1 Impact MBIO-2 Impact TBIO-1</td>
<td>Impact modified to remove decommissioning/removal activities of Pier 421-1</td>
<td>MM MBIO-1 MM modified to remove reference to Pier 421-1 removal</td>
</tr>
<tr>
<td>Impact TBIO-3</td>
<td>Impact includes Pier 421-1</td>
<td></td>
</tr>
<tr>
<td>Impact LU-2</td>
<td>Impact includes processing on PRC 421 piers</td>
<td></td>
</tr>
<tr>
<td>Impact LU-3 Impact VR-2</td>
<td>Impacts include Pier 421-1</td>
<td></td>
</tr>
</tbody>
</table>
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Geological Resources

Impacts related to this alternative would be similar to the Project; however, there would be a combination of new and recommissioned facilities that would be vulnerable to impacts associated with the geologic hazards, including new oil separation equipment on Pier 421-2 and the recommissioned Pier 421-1, as well as flowlines between the two piers. As a result of the additional facilities, Impacts GEO-1, GEO-3, and GEO-4 would be greater than under the Project, but they would remain less than significant with mitigation with the use of the same MMs as the Project (MMs GEO-1a through GEO-1d, GEO-2a through GEO-2c, GEO-3, and GEO-4a through GEO-4d). However, several of these MMs would need to be modified to include Pier 421-1 (see Table 5-3 above). Impact GEO-2 and GEO-5 would remain the same as under the Project.

Safety

This alternative would increase potential safety impacts compared to the project, because of the new and recommissioned facilities, including the new oil separation equipment on Pier 421-2 and the recommissioned Pier 421-1; while the potential impacts related to a spill at the EOF would be reduced from those associated with the Project. Impacts S-1, S-3, S-5, and S-6 would remain the same as under the Project. The risk of fire with this alternative (Impact S-8) would be greater than the Project, as additional infrastructure and oil handling would occur within the surf zone, with greater wave and corrosion exposure increasing the risk of accident and fire.

The new and recommissioned facilities associated with this alternative would increase potential impacts related to potential collapse of caisson walls and/or potential release of oil or hazardous materials from Pier 421-2; however, the level of significance associated with these impacts would remain the same as under the Project. Impact S-2, related to a potential collapse of caisson walls, would be greater due to the continued presence of Pier 421-1; however, this impact could be mitigated to a less than significant level with implementation of MM S-2a. MM S-2a would be modified to require design review and wave loading evaluation for Pier 421-1 in addition to Pier 421-2. Improvements to the caisson on Pier 421-1 would be similar to the proposed Project (Figure 2-4). The potential for a release of oil or hazardous materials from Pier 421-2 into the marine environment or nearby sensitive habitats, Impact S-4, would increase due to the presence of separation equipment on Pier 421-2, and the potential quantity released would be 12.5 barrels. In addition, produced water would be injected from Pier 421-1 over open water. This impact is already considered significant and unavoidable, so the level of significance would remain the same.

Hazardous Materials

Impacts related to this alternative would be similar to the Project, including potentially significant Impacts HAZ-1 and HAZ-2, and would require implementation of the...
proposed MMs as well as expansion of these measures to cover potential impacts from
the continued use of Pier 421-1 as a reinjection facility (see Table 5-3 above). HAZ-1
would require the implementation of MMs HAZ-1a through HAZ-1d, to reduce this
impact to a less than significant level. MM S-2a would be expanded to include a design
review and wave loading evaluation for Pier 421-1 to determine whether this facility
would require improvements prior to recommissioning. Improvements to the caisson on
Pier 421-1 would be similar to the improvements on Pier 421-2 for the proposed Project
(Figure 2-7). These measures would reduce the risk of exposing the public and the
environment to hazardous materials due to collapse of the caisson on Pier 421-1 or
421-2 such that Impact HAZ-2 would be less than significant with mitigation.

Air Quality and Greenhouse Gases (GHGs)

Emissions would be similar to the Project, with some differences due to the relocation of
oil processing and use of Pier 421-1 for reinjection. Operation of separation equipment
on Pier 421-2 would result in greater fugitive emissions as compared to the use of
existing equipment at the EOF under the Project; however, these increases would be
minor and emissions would remain far below the annual threshold of significance of 25
tons per year, and impacts associated with operation would remain less than significant.
Because Pier 421-1 would remain in place, no construction emissions would be
associated with removal of this structure; however, MMs associated with this alternative
would require repair of the caisson walls at Pier 421-1. This would produce emissions
associated with operation of construction equipment, worker trips, hauling of demolition
material, delivery of materials and equipment. MMs AQ-1a through AQ-1e would apply
to this alternative to reduce emissions from construction activities. Emissions from
construction activities would remain below the threshold of 25 tons per year and would
remain less than significant. GHG emissions under this alternative would be similar to
the Project and MM AQ-4 would apply.

Hydrology, Water Resources, and Water Quality

Impacts related to this alternative would be greater than for the Project, with potentially
significant impacts WQ-1 and WQ-2 and significant Impact WQ-3 being more severe
due to additional oil infrastructure in the surf zone and greater potential for accidental
releases from the GLCS. As under the Project, implementation of MMs HAZ-1a through
HAZ-1d, WQ-1a, WQ-1b, WQ-2, TBIO-1a, TBIO-1b, TBIO-1d, and TBIO-1e would be
required and would reduce impacts WQ-1 and WQ-2 to a less than significant level.
MMs described in Section 4.2, Safety, would apply to this alternative, and
implementation of these measures would reduce the risks of an oil spill that would
impact the marine environment and surface water quality. Additionally, MM WQ-3a and
WQ-3b would reduce the risk of an oil spill and increase emergency preparedness in
the case of a spill. Although the risk of an oil spill is very low, the potential for a release
into the marine environment and surface waters still exists and would be greater under this alternative, and therefore Impact WQ-3 would be significant.

Marine Biological Resources

Impacts related to this alternative would be generally more severe than for the Project, with Impacts MBIO-1 through MBIO-6 applying to this alternative. Impacts MBIO-1, MBIO-2, MBIO-3, and MBIO-6 related to construction and kelp harvesting would have the same level of significance as under the Project, both before and after MMs are implemented. Because Pier 421-1 would remain in service, repairs may be required to the caisson walls, as per MM S-3, which would be modified for this alternative (see Table 5-3 above). All MMs that apply to the Project would also apply to this alternative, with some being modified to cover potential caisson repairs at Pier 421-1 in addition to those currently addressed at Pier 421-2. MMs that would need to be modified to include activity at Pier 421-1 are MMs MBIO-1a, MBIO-3a, and MBIO-3b. All other MMs related to marine biological resources that apply to the Project would be implemented in the same manner under this alternative as in the Project, including MMs HAZ-1c, HAZ-1d, WQ-1a, WQ-1b, and NZ-1a through NZ-1c. Resulting impacts after mitigation would be the same as under the Project.

However, Impacts MBIO-4 and MBIO-5 related to oil spills would be more severe than under the Project because larger volumes of oil would be present on Pier 421-2 and separation equipment located on the pier would be vulnerable to upset or damage from storms, waves, and corrosion. The risk of a spill in the marine environment is low under either the Project or this alternative; however, any level of risk of an oil spill would be considered significant since impacts from an oil spill would be significant and unavoidable. MMs MBIO-4a and MBIO-4b would apply to these impacts under this alternative. These measures would help to reduce potential impacts associated with an oil spill; however, these impacts would remain significant and unavoidable.

Terrestrial Biological Resources

Impacts related to this alternative would be more severe than for the Project due to oil processing occurring on Pier 421-2, with Impacts TBIO-1 and TBIO-2 applying to this alternative. Impact TBIO-1 would be the same under this alternative as under the Project, and the associate mitigation measures, MMs TBIO-1a through TBIO-1f, would apply to this alternative; these measures would reduce this impact to a less than significant level. Impact TBIO-2 would be considered a significant impact under this alternative, as it is under the Project. This alternative presents a slightly higher risk of an oil spill occurring due to the presence of the separation equipment on Pier 421-2. The risk of a spill in the marine environment is low under either the Project or this alternative; however, the risk would be increased under this alternative and any level of risk of an oil spill would be considered a significant impact since a spill would result in significant and
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unavoidable impacts. MMs TBI0-2a and TBI0-2b would apply to this alternative, and would help to mitigate impacts associated with an oil spill; however, this impact would remain significant and unavoidable.

Land Use, Planning, and Recreation

Land use impacts from this alternative would be more severe than those associated with the Project, with LU-1 through LU-3 being significant impacts, as under the Project; however, these impacts would be greater due to the increased risk of an oil spill associated with the use of separation equipment that would be located in the surf zone on Pier 421-2. City Policy 10.1 supports County consolidation policies that prohibit the permitting of new oil and gas processing facilities in Goleta. As provided under Impact LU-1 in Section 4.8.6, production from PRC 421 is not defined as "new production" under the County’s consolidation policy, therefore oil production on PRC 421 is not subject to the consolidation policy. This alternative, however, potentially conflicts with Policy LU 10.4 which states that the city does not support recommissioning of PRC 421 due to environmental risks and specifically opposes on-pier processing of oil within the tidal zone unless it is demonstrated that there is no feasible and less environmentally damaging alternative. This alternative would conflict with Policy 10.4 in that Impact LU-1 would be more severe due to processing on the pier.

Impacts LU-2 and LU-3 address potential impacts related to a release of oil from PRC 421 to recreation and to sensitive area resources, respectively. These impacts are both significant under the Project, and would remain significant under this alternative. Due to the increased risk of a spill associated with the presence of the separation equipment on Pier 421-2, these impacts would be slightly greater than under the Project. Implementation of MMs outlined in Sections 4.1, Geological Resources; 4.2, Safety; 4.3 Hazardous Materials; 4.5, Hydrology, Water Resources, and Water Quality; 4.6, Marine Biological Resources; and 4.7, Terrestrial Biological Resources would reduce the risk of a spill and the resulting impacts if a spill were to occur; however, these impacts would remain significant and unavoidable.

Public Services

Impacts associated with this alternative would be similar to the Project, with both Impact PS-1 and PS-2 and MMs PS-1 and PS-2 applying to this alternative. Both of these impacts would be potentially significant, as under the Project, and could be mitigated to a less than significant level. Presence of the separation equipment on Pier 421-2 may present a slightly higher risk of fire than processing at the EOF; however, the risk would be very low and the increase in risk over the Project would be incremental. Therefore, the impacts associated with this alternative would be consistent with those associated with the Project.
Transportation and Circulation

Transportation impacts associated with this alternative would be similar to the Project, with Impacts TR-1 through TR-3 and MMs TR-1a and TR-1b applying to this alternative. All of these impacts would be less than significant, as under the Project, and would be further reduced through mitigation. Pier 421-1 would not be decommissioned and removed, so there would be no impact associated with this activity; however, caisson walls at Pier 421-1 would be repaired similar to the caisson repairs under the Project (Figure 2-4). This activity, if necessary, would increase construction traffic during the initial construction period; however, impacts would still be of a short duration and would remain less than significant.

Noise

Noise impacts associated with construction under this alternative would be similar to the Project, with Impacts NZ-1 and NZ-2 and MMs NZ-1a through NZ-1c applying to this alternative. Both of these impacts would be less than significant, as under the Project, and with NZ-1 being further reduced through mitigation. Pier 421-1 would not be decommissioned and removed, so there would be no noise impact associated with this activity; however, caisson walls at Pier 421-1 would be repaired similar to the caisson repairs under the Project (Figure 2-4). This activity, if necessary, would increase construction noise during the initial construction period; however, impacts would still be of a short duration and would remain less than significant.

Noise impacts associated with operation of this alternative would be increased from those associated with the proposed Project and discussed under Impact NZ-2 due to the presence of oil processing equipment on Pier 421-2; however, they would remain less than significant. Noise from this equipment has the potential to disturb recreational users in the vicinity of PRC 421-2, including beach users and golfers at Sandpiper Golf Course. The use of a downhole ESP pump would eliminate the need for surface pumping equipment and the noise associated with the above-ground oil pumping equipment. However, occasional gas emissions from the proposed cyclonic separators could create periodic very brief (less than 1 minute) noise levels of up to 85 decibels on the A-weighted scale (dBA) at 50 feet. While these periodic bursts of noise would be noticeable to beach goers and users of Sandpiper Golf Course, their short duration and episodic nature would not noticeably alter ambient noise levels in the Project vicinity. Therefore, long-term noise impacts to recreational users of the beach and surrounding area associated with operation of this alternative would be less than significant.

Aesthetic/Visual Resources

Aesthetics/visual resource impacts associated with this alternative would be somewhat more severe than for the Project. Impact VR-1 and visual resources from construction activities would remain similar to the Project because this alternative would have the
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same construction period and would be performed in the same general area, although
there would not be a second round of construction would occur with decommissioning of
Pier 421-1 since PRC 421-1 would not be decommissioned under this alternative. MMs
VR-1a through VR-1e would reduce this impact from potentially significant to less than
significant. Impact of visual effects due to accidental oil spills, Impact VR-2, would be
somewhat more severe as the potential for a spill would be greater under this
alternative than under the Project due to the presence of the separator equipment on
Pier 421-2. The risk of a spill would be very low; however, potential impacts to visual
resources are still considered significant, as under the Project. Implementation of
mitigation measures identified in Sections 4.2, Safety; 4.5, Hydrology, Water
Resources, and Water Quality; 4.6, Marine Biological Resources; and 4.7 Terrestrial
Biological Resources, would reduce potential impacts, but they would still remain
significant. Beneficial Impact VR-3, Visual Improvements due to Removal of Pier 421-1,
would not occur since this facility would be put back into operation and would not be
decommissioned and removed until after PRC 421 production ceases. Impact VR-4
related to visual impacts associated with alteration of Pier 421-2 would be less severe
due to limited construction on that caisson and would remain less than significant.

Cultural, Historical, and Paleontological Resources

Under this alternative, increased handling of oil on the piers would incrementally
increase the risk of a spill; however, as with the Project, MM CR-1 would reduce these
impacts to a less than significant level.

Energy and Mineral Resources

Energy requirements for this alternative would be the same as the Project in which
expected electricity usage would be approximately 80 kilowatts (kW), or 0.701 gigawatt
hours (GWh)/year.

Socioeconomics and Environmental Justice

This alternative would not disproportionately affect minority or low-income populations
or result in a substantial disproportionate decrease in the employment and economic
base of minority and/or low-income populations in the area. The presence of separation
equipment on Pier 421-2 would increase the risk of an oil spill, which could affect the
residents of Isla Vista; however, as discussed Section 4.15, the demographics of Isla
Vista do not qualify the community as a disadvantaged population within the CSLC’s
Environmental Justice Policy.
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5.3.2 No Production/Quitclaim State Oil and Gas Lease PRC 421

Description

Under this alternative, the State would take an affirmative action to terminate PRC 421. Terminating the lease would deny Venoco’s contractual right to produce oil from the lease premises; as such, the State would likely be required to pay Venoco for the interest taken. The amount to be paid to Venoco from the State would likely be the fair market value of the oil that would have been produced over the production life of the Project. This alternative would avoid the impacts of Project start-up and operation, including construction-related impacts to marine resources, water quality, short-term noise, and aesthetics. Long-term impacts including incremental increases in the potential for oil spills from shore zone oil production and pipeline transportation on the marine and terrestrial resources and adjacent land use impacts would be avoided.

CSLC staff indicated that the pressure build-up could potentially cause oil releases into the coastal environment as the increased pressure would place pressure on historic abandoned wells in offshore areas of the reservoir or possibly lead to additional releases of oil from a natural seep. Many of the offshore wells were abandoned in the 1940s and 1950s using abandonment and well-capping techniques of that period, which are not adequate by current standards (refer to Section 4.2.1). The structural stability of older abandoned facilities is unreliable and a substantial increase in reservoir pressure could cause a release of oil to the coastal environment.

Given current conditions – PRC 421 is shut-in and all other wells that once tapped the reservoir have been abandoned – there is no active well penetrating the reservoir into which pressure-testing equipment can be inserted; consequently, no mechanism currently exists to conduct pressure testing of the reservoir to determine the extent of possible pressure build-up. Additionally, Venoco is under no obligation to pressure test the wells or the reservoir. Thus, if the wells remain shut-in, pursuant to a quitclaim of the lease, and there is a release of oil within the PRC 421 vicinity that causes environmental damage, an oil spill response would occur once the release is reported and an investigation by the State would commence to find the cause. The determination of the cause would occur at the time of a spill and would depend on the facts involved with such an incident. As noted above, possibilities in the event of a release may include oil coming from a natural seep as a result of naturally occurring repressurization or a leak from an old, improperly abandoned well; therefore, it is difficult to monitor such possibilities.

The subsequent consequence of this alternative would be a future decommissioning of the PRC 421 infrastructure, following either legislative authorization for the necessary appropriations or the conclusion of litigation requiring payment, including the piers, access road and seawall, and pipelines and any associated required clean up or site
remediation. Specifics on decommissioning would be addressed in the Abandonment and Restoration Plan to be prepared and submitted to the CSLC, CCC, and the City of Goleta and would require applicable environmental documentation such as a Mitigated Negative Declaration (MND) or an EIR.

Environmental Impact Analysis

Repressurization

As noted above and in Section 4.2.1, Safety, the CSLC has concerns about the potential repressurization of the Vaqueros Reservoir, leading to oil leaks from wells that were abandoned in the 1940s and 1950s and the impact of any such releases to marine waters, coastal habitats, recreation, public access and other public trust resources and values. Based upon the thresholds identified in this EIR, any such release of oil into the environment could create potentially significant indirect impacts to affected marine, nearshore, and estuarine environments similar to those identified in Impacts S-4, HAZ-1, WQ-3, MBIO-4, MBIO-6, MBIO-7, TBIO-2, LU-3, VR-2, and CR-2. No leaks from existing abandoned wells have been documented and insufficient data exist to quantify the actual potential for such leaks to occur, their exact location, or the size of such leaks; however, given the possibility of leaks this presents a significant and unavoidable impact. A consequence of the alternative would be that the CSLC may need to contract with an operator to temporarily produce the reservoir in order to conduct pressure testing as described above before final disposition of the facilities.

Geological Resources and Safety

Until all PRC 421 facilities are fully abandoned, potentially significant impacts could occur through partial collapse of the caissons, particularly the non-seaward facing walls of Piers 421-1 and 421-2 which have not been repaired (see Impacts GEO-1, GEO-4; S-2). In addition, while damage to sections of the aging timber bulkhead, or under-engineered portions of the seawall protecting this bulkhead, could be of concern due to the possible release of potentially contaminated soil into the surf, impacts would be less than those identified for the Project as damage to the existing 6-inch line would not have the potential to release oil or produced water into the environment (see Impacts S-3, S-4; and HAZ-2).

Project facilities, including the caissons and seawall show signs of weathering, aging and damage typical of structures exposed to continual marine action. Repairs to the seaward-facing caissons of Pier 421-1 in 2004 and Pier 421-2 in 2011 addressed some of these adverse conditions, but not all. Under this alternative, these facilities could potentially remain shut in for an extended period of time and be exposed to continued damage from waves and potential seismic activity. As discussed under Impacts S-2 and S-3 above, age, corrosion, weathering, past caisson collapses and undocumented construction techniques create concerns over the long-term stability of these structures.
In addition, the gaps in the seawall and uncertain stability of the aging timber bulkhead may expose these facilities to damage. Possible damage to these facilities over an extended decommissioning process could expose these facilities to damage and the potential for accidental release of contaminated soil, sand and potentially residual oil. The risk of fire with this alternative (Impact S-8) would be lower than under the Project as oil would not be produced or transported, although a potential for fire at the PRC 421 piers would remain until such time and decommissioning and proper well abandonment is completed.

**Hazardous Materials**

This alternative would avoid the potential for contaminated sediment to be encountered during construction activities; potential effects during decommissioning the facilities would be evaluated in a separate analysis. Until PRC 421 is fully abandoned, impacts could occur through the partial collapse of the caissons or damage to the seawall (see Section 4.2.5, Safety). Such a collapse and the subsequent release of contaminated sediment would result in impacts similar to those described for the Project (see Impact HAZ-2), which would be less than significant with mitigation. The decommissioning of PRC 421 would include eventual site investigation and remediation and would be addressed in an Abandonment and Restoration Plan and evaluated in a separate environmental document. However, until decommissioning is complete, Impact HAZ-2 would remain.

**Air Quality and GHGs**

Under this alternative, Venoco would not recommission PRC 421 and there would be no long-term air quality and GHG impacts associated with Project start-up and operation. Specifics on any future decommissioning and related impacts to air quality would be addressed in an Abandonment and Restoration Plan and evaluated in a separate environmental document.

**Hydrology, Water Resources, and Water Quality, Marine Biological Resources, and Terrestrial Biological Resources**

Until PRC 421 is fully decommissioned, potentially significant impacts could occur through damage to the caissons and seawall and subsequent releases of oil or contaminated materials into the marine environment. Both seaward-facing caissons of both Piers 421-1 and 421-2 have now been repaired under emergency permits; however, other aging caisson faces could be subject to collapse or damage. Such impacts would remain similar to that described in Impacts WQ-3, MBIO-2, and MBIO-4 (see also Sections 4.2, Safety and 4.3, Hazardous Materials). As noted in Section 4.2.1, the CSLC has concerns about the potential for pressure to build up in the Vaqueros Reservoir, causing oil to escape from wells that were abandoned in the 1940s and 1950s. This concern is based on observations following the 1994 shut-in of the PRC.
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421 wells. The potential for unquantified and uncontrolled releases from previously abandoned wells is of concern because the releases would directly impact marine waters and coastal habitats. Based upon the thresholds identified in this EIR, any such release of oil into the environment could create significant and unavoidable impacts, similar to those identified in Impact WQ-3. Although it is not possible to precisely quantify the potential for such leaks to occur, their exact location or the size of such leaks, any release of oil into the environment would be considered an unavoidable and significant impact.

Land Use, Planning, and Recreation

Under this alternative, Venoco would not recommission PRC 421. The PRC 421 wells would remain shut-in until the supporting infrastructure could be decommissioned (the potential effects of decommissioning would be analyzed in a separate evaluation). Until the PRC 421 is fully abandoned, potentially significant impacts could occur through collapse of the caissons, which would result in impacts similar to those of the Project (see Impacts LU-1, LU-2, S-2). In addition, while damage to sections of the aging timber bulkhead or under-engineered portions of the seawall protecting this bulkhead could be of concern due to the possible release of potentially contaminated soil into the surf, impacts would be less than those identified for the Project as damage to the existing 6-inch line would not have the potential to release oil or produced water into the environment (see Impact S-3). Although quitclaiming the lease and decommissioning of the structures under this alternative would be consistent with the City Policy LU 10.4, Venoco has a current and valid lease and a vested right to produce PRC 421.

Public Services

Because the PRC 421 would not be recommissioned, this alternative would not result in the need for a fire prevention plan or an incremental addition to the demand for SBCFD services. Therefore, there would be no impacts to publicly provided fire prevention and emergency services.

Transportation and Circulation and Noise

Because the PRC 421 would not be recommissioned, this alternative would avoid the majority of impacts associated with production, transfer, and transport of crude oil produced from PRC 421. No construction activities associated with the Project would occur; therefore no related traffic and noise would be generated and there would be no impact to transportation resources and noise. Traffic and noise generated from decommissioning activities is unquantified and would be analyzed in a future environmental document. If there was a leak from abandoned wells in the vicinity due to repressurization of the Vaqueros Reservoir, both on- and off-shore traffic and noise would increase during cleanup. Given uncertainty over volumes and locations of leaks,
it is not possible to identify traffic and noise impacts, which would likely involve a limited number of auto and marine vessel trips over the short term.

Aesthetic/Visual Resources

Until the PRC 421 is fully abandoned, potentially significant impacts could occur if damage to the caissons occurred (see Section 4.2.5, Safety). Such damage and any subsequent release of oil contaminated sands onto area beaches and potentially into the ocean would result in impacts similar to those of the Project (see Impact VR-2). Insufficient data exist to quantify the actual risk that repressurization poses to the area offshore of Goleta; however, the probability that an oil leak could occur, due to repressurization, and the associated changes to visual resources associated with released oil would be considered unavoidable and significant, similar to those of the Project (see Impact VR-2). The eventual removal of components of PRC 421 would be considered a beneficial impact since removal of the piers would allow a greater view of the Pacific Ocean and other sensitive view sheds of the Ellwood-Devereux Coast. If the structural components of PRC 421 are left in place, no change would occur to the existing visual setting. Therefore, there would be no impacts to visual resources. Potential effects of decommissioning would be evaluated in a separate analysis.

Cultural, Historical, and Paleontological Resources

This alternative would avoid the majority of impacts associated with production, transfer, and transportation of crude oil produced from PRC 421. Because no production would occur, the risk of an oil spill would be limited to seepage from inadequately abandoned wells and natural seeps following reservoir repressurization. Although insufficient data exist to quantify the actual potential for such leaks to occur, their exact location or the size of such leaks, impacts associated with any such leaks to cultural resources associated with released oil would be considered less than significant, similar to those of the Project (see Impact CR-2). Impacts associated with any future decommissioning of PRC 421 would be analyzed in a separate document.

Energy and Mineral Resources

The Project would develop an energy resource that would otherwise remain unavailable if the lease is quitclaimed and commercial production does not occur.

Socioeconomics and Environmental Justice

This alternative would not disproportionately affect minority or low-income populations or result in a substantial disproportionate decrease in the employment and economic base of minority and/or low-income populations in the area.
5.0 Alternatives Analysis

5.3.3 Reinjection at Platform Holly

Description

Under this alternative, production would resume at PRC 421 as described under the No 3 Project Alternative; however, produced water and gas would be sent to Platform Holly, via a 4-inch utility pipeline, for reinjection, and Venoco would decommission Well 421-1, its caisson, and pier on an accelerated schedule. This alternative would also entail installing a 2-inch pipeline that extends from Well 421-2 to Line 96. The new ESP in Well 421-2 would provide enough pressure to inject oil into Line 96 at up to 1,440 psig. A new 2-inch pipeline for transport of water and gas to the 4-inch utility pipeline would be installed within the 6-inch pipeline along with the 2-inch oil pipeline. A 4-inch sub-sea utility pipeline currently extends from the EOF to Platform Holly and is used to provide California Public Utilities Commission (PUC)-grade gas to the platform for use as the flare purge and pilot fuel and fuel for the three Holly drilling generators. Under this alternative, this pipeline would instead be used to ship produced water and gas for disposal at Platform Holly. Therefore, initial disposal of produced water at Platform Holly would require Venoco to cease using the utility line for natural gas and instead use annulus gas produced at Platform Holly which has higher sulfur content than PUC gas. To accommodate the use of (or sweeten) the annulus gas, Venoco would need to install new equipment (H₂S scrubbers) and implement operational changes at Platform Holly subject to review and approval by the Santa Barbara County Air Pollution Control District (APCD) and other regulatory agencies. Presuming use of the existing line, this alternative would require that Venoco use gas produced at Platform Holly to power equipment locally. Because this gas has higher sulfur content than the gas currently used at the platform, new equipment (H₂S scrubbers) and operational changes would be required at Platform Holly.

The following improvements would be required under this alternative:

- Installation of new decking and railings on Pier 421-2;
- Installation of a downhole ESP, stainless steel equipment enclosures, and new oil separation equipment (GLCS and LLCS) on Pier 421-2;
- Installation and operation of two new 2-inch pipelines, one to transfer oil to Line 96 and one to transfer produced water and gas to the 4-inch utility line for reinjection at Platform Holly;
- Installation of H₂S scrubbers on Platform Holly;
- Upgrades to the existing 6-inch line from Pier 421-2 to Line 96;
- Installation and operation of buried power cables to Pier 421-2 to operate the well and associated control systems;
- Installation of a communication system between Well 421-2 and the EOF;
5.0 Alternatives Analysis

- Installation of surveillance cameras on Pier 421-2 that would monitor the pier and provide a live video feed that would be displayed in the EOF Control Room;
- Installation of a LACT system for PRC 421 oil before introduction to Line 96;
- Reactivation of the oil well at Pier 421-2, with projected production as indicated for the Project in Section 2.4.1, Volumes and Throughput; and
- Decommissioning of Pier 421-1 as described for the Project (see Section 2.6, Decommissioning and Removal of Pier 421-1).

Environmental Impact Analysis

The impact analysis for the Reinjection at Platform Holly Alternative would essentially be the same as those described under the No Project Alternative with regards to processing the oil on Pier 421-2, which would incrementally increase impacts compared to the Project due to increased risk of an oil spill in the surf zone. This increased impact would include the following issue areas:

- Hazardous Materials
- Hydrology, Water Resources, and Water Quality
- Marine Biological Resources
- Land Use, Planning, and Recreation
- Aesthetic/Visual Resources

Impacts from decommissioning Pier 421-1 would be the same as the Project, although with the transport of separated water and gas to the 4-inch sub-sea utility pipeline for injecting at Platform Holly would incrementally increase impacts offshore compared to the Project due to a possible leak or rupture of the 4-inch pipeline.

5.3.4 Processing PRC 421 Oil at Las Flores Canyon

Description

Under this alternative, the oil/gas/water emulsion would be produced at Pier 421-2, similar to the proposed Project, but instead of transporting the emulsion to the EOF for processing, the emulsion would bypass the EOF and be pumped through a new pipeline to LFC for processing. LFC is designated as a consolidated facility under Santa Barbara County Zoning Code section 35-154 and currently operated by ExxonMobil. This alternative would require construction of at least two new pipelines: a 0.5-mile pipeline from Pier 421-2 to the EOF tie-in and an approximately 9.7-mile pipeline from the EOF to a proposed Venoco LFC Receiving Station (Receiving Station) located at LFC. The EOF to LFC pipeline portion would comprise approximately 8.4 miles from the EOF to LFC and 1.3 miles within LFC from U.S. Highway 101 (Hwy 101) to the Receiving Station (Figure 5-2).
5.0 Alternatives Analysis

The pipeline from the EOF to LFC would run parallel to and north of Hwy 101 and existing Line 96 along Calle Real, which traverses many private parcels. The emulsion produced at PRC 421 would remain in a three-phase state (oil/gas/water) before being processed at LFC. As such, the existing Line 96 pipeline could not be used to transport the PRC 421 emulsion product as it would be incompatible with the processed oil currently transported from the EOF to the PAAPLP Coastal Pipeline for distribution. This alternative would also require additional infrastructure both at PRC 421 and at LFC to enable pumping of the PRC 421 emulsion product to LFC, processing of the product at the LFC facility, and disposal of produced water. The following detailed description was provided by Venoco in consultation with ExxonMobil due to the required infrastructure needs at LFC.

Resuming production at PRC 421 under this alternative would entail:

- Reactivation of Pier 421-2 and Well 421-2 and installation of improvements at PRC 421, including power and communication cables along the access road and for communication and control systems at the EOF, similar to the Project (refer to Section 2.2, Proposed Project);
- Use of chemical injection at Well 421-2 to offset the effects of cooling along the pipeline route and provide pipeline corrosion protection, including installation of up to four chemical injection tanks and pumps located near the wellhead;
- Decommissioning and abandonment of Pier 421-1 and Well 421-1 (refer to Section 2.6, Decommissioning and Removal of Pier 421-1);
- Installation of a new 3.826-inch pipeline with cathodic protection extending approximately 0.5 mile between PRC 421 and the tie-in adjacent to the EOF, with the existing 6-inch pipeline abandoned in place or removed;
- Installation of a new 3.826-inch pipeline with cathodic protection from the tie-in south of and adjacent to the EOF extending approximately 8.4 miles parallel to and north of Hwy 101 to reach LFC, and 1.3 miles north within the LFC/ExxonMobil property along Corral Canyon Road to the Receiving Station at LFC;
- Construction of a new oil dehydration plant and oil and water storage tanks at LFC; and
- Construction of a Class II Underground Injection well at LFC.

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4 Introducing oil emulsion (oil/gas/water) into a processed oil product pipeline would significantly increase the corrosive actions of transported product on the pipeline resulting in a substantial increase in risk of pipeline failure and oil spills. Line 96 is also a PUC regulated common carrier and the product it carries (“Sales Quality” Crude Oil) is considered a “fungible good.” As per the approved Federal Energy Regulatory Commission tariff, introduction of any foreign contaminants (gas, water) is prohibited.

5 This assumes that a Class II Underground Injection well can be constructed at LFC.

6 In the event that an injection well cannot be constructed at the LFC a water disposal pipeline from the LFC back to the EOF or PRC 421 could also be required.
**Project Components for Proposed Alternative**

<table>
<thead>
<tr>
<th>ID</th>
<th>Location</th>
<th>Type of Bore</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bell Creek</td>
<td>Horizontal Directional Drill</td>
<td>586'</td>
</tr>
<tr>
<td>2</td>
<td>Eagle Canyon Creek</td>
<td>Horizontal Directional Drill</td>
<td>912'</td>
</tr>
<tr>
<td>3</td>
<td>Dos Pueblos Creek</td>
<td>Horizontal Directional Drill</td>
<td>563'</td>
</tr>
<tr>
<td>4</td>
<td>Unnamed Drainage</td>
<td>Horizontal Directional Drill</td>
<td>672'</td>
</tr>
<tr>
<td>5</td>
<td>Unnamed Creek</td>
<td>Slick Bore</td>
<td>100'</td>
</tr>
<tr>
<td>6</td>
<td>Unnamed Drainage</td>
<td>Slick Bore</td>
<td>100'</td>
</tr>
</tbody>
</table>

Note: Bore hole segment numbers correspond to those presented in the table above.

**Horizontal Directional Drilling:** Drilling in a shallow arc using a surfaced launched drilling rig.

**Slick Bore:** Drilling horizontally between two boring pits at the entry and exit points.

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**Pipeline Configuration Looking East**

- Proposed 10-Foot Right-of-Way
- Southern California Gas and/or Caltrans Right-of-Way
- U.S. 101

- 3-Foot Minimum Cover
- 3-Foot Offset
- New PRC 421 3-Phase LFC Pipeline
- Existing Line 96 Pipeline

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**Figure 5-2**

**PRC 421 Alternative: Processing PRC 421 Oil at Las Flores Canyon**

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In addition to the components of the alternative described above, additional infrastructure may be required to accommodate associated increased power demand and fire protection needs.

**Reactivation of Pier 421-2 and Well 421-2**

Well 421-2 would be returned to service as an oil production well as provided in Section 2.2, Proposed Project, and includes the installation of:

- A new ESP deep inside (approximately 2,000 feet below ground level) the casing of Well 421-2 and associated stainless steel equipment enclosures;
- A new power cable from the EOF to the ESP;
- A new power cable from the EOF to Pier 421-2 to power metering, well instrumentation, and control systems;
- Well safety equipment;
- Connecting piping and a pig launcher connection;
- Provisions for process monitoring and control between Pier 421-2 and the EOF;
- New wood-plank decking and replacement railings on around the perimeter of the Pier 421-2 deck for safety and aesthetic purposes;
- A communication system, including a cable between Pier 421-2 and the EOF;
- A surveillance camera mounted on Pier 421-2 that would monitor the piers and would provide live video feed displayed in the EOF Control Room; and
- Reactivation of Well 421-2.

Under this alternative, several other modifications and additional infrastructure at Pier 421-2 and Well 421-2 would be required compared to the Project (Figure 5-3) and include the following:

- A larger ESP would be required to be used for both drawing produced oil/gas/water emulsion to the surface as well as pumping the product approximately 10.2 miles from Pier 421-2 to the LFC Receiving Station. Additionally, the ESP would need to operate at a higher discharge pressure of approximately 700 psig, as opposed to 100 psig with the Project, in order to minimize gas breakout and slugging in the pipeline. This increased pressure would require an approximately 42 percent increase in brake horsepower.

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**Slugging** is the accumulation of a water, oil or condensate in a gas pipeline. Liquids tend to settle on the bottom of the pipeline, while gases occupy the top. Under certain operating conditions gas and liquid are not evenly distributed throughout the pipeline, but travel as large plugs with mostly liquids or mostly gases through the pipeline. These large plugs are called slugs.
Processing at LFC Alternative
Project Components in the PRC 421 Vicinity [Revised]
5.0 Alternatives Analysis

- Installation of a 10-gallon isokinetic sampler and oil storage bottle adjacent to the wellhead at Well 421-2 to obtain representative samples of a flowing three-phase stream (i.e., oil, gas, water) to facilitate accurate analysis of the produced fluid compensation prior to transportation through the new pipelines to LFC.

- Installation of a check meter to collect initial measurements of wellhead production, although three-phase mode (oil, water, and gas) production would limit accurate metering.

- Four chemical tanks ranging from 55 to 350 gallons with 100-percent leak containment to permit injection of chemicals into produced emulsion at Well 421-2 and to accommodate operation and maintenance of the new three-phase pipeline. Chemical injection would help offset the effects of cooling of emulsion along the pipeline route, with subsequent drop-out of asphaltines and paraffin and emulsion tightening, and to provide for pipeline corrosion protection.8

The above configuration assumes that the new pipeline to LFC would operate with the three-phase emulsion product (also known as “tightlining”). The ability to tightline is dependent on several factors, including the gas/oil ratio (GOR), water cut (i.e., the water content in the emulsion), and the type and density of the oil/gas/water emulsion. These variables are currently uncertain and may vary over the productive life of the well. If tightlining is not possible, gas would need to be separated out of the emulsion prior to transportation through the pipeline, which would require the following infrastructure:

- A 1,000 to 1,500-barrel cone roof breakout tank vented to a vapor recovery unit (VRU) control device on Pier 421-2.

- Installation of a flare with a propane fuel supply in order to burn off the gas that is separated from the emulsion.

- An oil shipping pump installed on Pier 421-2 in order to pump the remaining oil/water emulsion from the breakout tank through the new pipeline to LFC.

Decommissioning of Pier 421-1 and Well 421-1

Once production has begun at Well 421-2 and is being processed at LFC, Well 421-1 would be decommissioned and Pier 421-1 would be removed, as provided in Section 2.6, Decommissioning and Removal of Pier 421-1, of the proposed Project. In the event that produced water cannot be disposed of at LFC through the constructed Class II Underground Injection well (see Construction of a Class II Underground Injection Well at LFC below), produced water would be routed back to PRC 421 via another pipeline for disposal at Well 421-1. If this were to occur, decommissioning would not occur and the facilities at Pier 421-1 would return to service for water disposal.

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8 Chemicals may include a scale inhibitor and emulsion breaker (both injected downhole through capillary strings); an anti-waxing agent and an emulsion breaker.
Installation of a New Pipeline between PRC 421 and the Tie-in Adjacent to the EOF

This alternative would require construction of a new 3.826-inch inside diameter and 4.5-inch outside diameter pipeline between PRC 421 and the existing tie-in adjacent to the EOF. The pipeline would need to have at least a 3.826-inch inside diameter to accommodate the pressure drop at the tie-in. Upgrade, extension, and lining of the existing 6-inch pipeline, as proposed under the Project, would not be sufficient since the existing pipe could not reliably support a 3.826-inch lining. Additionally, use of a lining between PRC 421 and the tie-in would hinder the use of cathodic protection for the pipeline between the tie-in and LFC. Therefore, a new underground line would be constructed along the existing access road, following the route of the existing 6-inch pipeline and starting from the existing tie-in adjacent to the EOF, extending past Pier 421-1 on to Pier 421-2. The new 3.826-inch line would be cathodically protected to reduce potential pipeline corrosion.

Proposed New Pipeline Route to LFC

Pipeline Route and Design: This alternative includes installation of a new three-phase, nominal high-pressure pipeline with a 3.826-inch inside diameter and 4.5-inch outside diameter to transport oil/gas/water emulsion from PRC 421 to the Receiving Station at LFC. The presence of entrained gas will require that this line is operated under high pressure (nominal 700 psig) to reduce break-out of gas and resultant “slugging” of flow. Because the line would have to be operated in three-phase mode, volumetric-based leak detection capability would not be possible; therefore, primary leak detection would be based upon low pressure switches. This new pipeline would run parallel to the existing Line 96 along the north side of Hwy 101, including a northern leg extending up LFC to the ExxonMobil consolidated facility and the proposed Receiving Station (Figures 5-2 and 5-4).

The new line would extend approximately 8.4 miles from the tie-in adjacent to the EOF to the entrance of LFC, and approximately 1.3 miles up canyon to the proposed Receiving Station for a total linear distance of approximately 9.7 miles. The specific location of the pipeline within the right-of-way (ROW) north of Hwy 101 would vary, depending on ROW clearances, access for construction easements, and site-specific constraints (e.g., existing trees, fencing, underground utilities, property owner considerations, access, etc.) For much of the route, the new pipeline would be located immediately north (inland) of the existing Line 96, as this pipeline is located adjacent to the Southern California Gas Company and/or Hwy 101 ROW. Subject to Ellwood Pipeline Inc., landowner, and PUC approvals, the new pipeline would be located within the same ROW as Line 96. If feasible, the new pipeline centerline would be preferably located a minimum of 3 feet from the existing centerline of Line 96. This alternative includes a minimum 10-foot pipeline ROW and temporary construction easements of up
New 3-Phase Pipeline from PRC 421  
Venoco LFC Receiving Station  
Existing Related Facilities
5.0 Alternatives Analysis

To 100 feet in width to allow for equipment access, staging, and construction activities.

The pipeline would be installed with a minimum of 3 feet of cover.

However, several locations along the pipeline route have inadequate room for preferred spacing between the existing Line 96 and the new pipeline; therefore, construction activity may require exposing the existing Line 96 pipeline for safety and to permit minimum separation. Where feasible, the pipeline would be placed largely within existing streets or road ROWs. Approximately 2.7 miles of the pipeline route passes through existing orchards or fallow fields. Wherever possible, the pipeline route would follow existing orchard service roads to minimize impacts to existing orchards and farmland. (Impacts to Agricultural Resources associated with this alternative are discussed under the Land Use, Planning and Recreation impacts discussion below).

The pipeline would enter the LFC/ExxonMobil property on Corral Canyon Road, and then intersect and run parallel to the existing ExxonMobil pipe bundle for 1.3 miles to the first empty pad, which is the proposed location of the Receiving Station (Figure 5-4). The proposed pipeline would transition to above-ground pipe sleeper (rack) supports before transitioning back to below ground in several places similar to existing pipelines, primarily to avoid disturbance of sensitive resources.

Pipeline Leak Detection and Prevention: Low pressure switches would be installed outside of the EOF and at the Receiving Station in LFC in order to detect leaks by monitoring for low pressure in the pipeline (Figure 5-2). In the event of a substantial loss of pressure at either end, the pipeline would be automatically shut down and blocked in. Because the pipeline would carry three-phase oil/gas/water emulsion, the actual properties of the fluid (e.g., density, temperature, bulk modulus, etc.) are expected to change along the pipeline route due to temperature and flow pressure changes. Elevation changes may also result in slug flows as heavier materials such as water accumulate at low points and are later pushed through the pipeline. Additionally, the emulsion delivered to the pipeline is expected to have an ever-changing profile of oil, water, and gas. Consequently, the pipeline pressure would be variable. As such, the accuracy of the leak detection system would be only +/- 15 percent over a 4-hour period. Flow upsets could further reduce accuracy to +/- 40 percent until flow equilibrium is reestablished.9

Mainline Block Valves (MBV) would be installed at both ends of the new pipeline. Additional block valves would be located on the east side of Eagle Canyon Creek, on the east side of Dos Pueblos Creek, near the intersection of Rancho Cañada and El

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9 The leak detection system would compare the volume of material that goes in and out of the pipeline. Field measurements would be corrected for pressure, temperature, and density, and then compared to measurements at the Receiving Station. With an oil/water emulsion, accuracy of +/- 5 percent over a 4-hour period is possible, but gas makes the system "spongy" and results in occasional slug flows, which reduce accuracy. Accuracy of the existing Line 96 is +/- 5 percent over a 4-hour period.
5.0 Alternatives Analysis

Capitan Ranch Road, and near the intersection of Calle Real and Corral Canyon Road. Check valve stations would be installed to prevent reverse flow in the pipeline and guard against release of product to the environment in case of catastrophic failure or dig-in damage at certain low points. Check valves would be located on the west side of Eagle Canyon Creek, the west side of Dos Pueblos Creek, the west side of Las Llagas Canyon, and near the departure point out of Calle Real near the delivery facility. MBVs and check valves would be accessible from the EOF in approximately 20 to 30 minutes.

In order to reduce potential corrosion of the pipeline, a cathodic pipeline rectifier and associated anodes would be installed at the Receiving Station to provide cathodic protection to the entire length of the new pipeline.\(^{10}\)

**Pipeline Construction:** Pipeline construction activities would include excavation, pipeline installation, welding, pipefitting, pipeline coating, carpentry, electrical, and general labor, and would be performed using one construction “spread” that groups construction equipment (e.g., backhoes and track hoes) to move sequentially along the pipeline route, clearing, trenching, laying in pipe, backfilling, and cleaning up. Highway, railroad, and creek/drainage crossings, block valve installation, and major street intersections would be accomplished by construction crews supporting the spread.

The pipeline trench would generally be 2 feet wide and 6 feet deep, accommodated within an approximately 100-foot wide construction corridor. Pipe handling would be performed using pipe-string trucks and side-boom tractors to transport and place the pipeline segments. Pipes would be bent, welded, and coated at joints as required to follow the proposed pipeline alignment. Pipes would then be lowered into the trench using side-boom tractors, and the ditch would be backfilled with trench spoils and compacted using a roller or hydraulic tamper. All welds would be visually and x-ray inspected prior to pipeline burial, and hydrostatic testing of the pipeline would be performed after construction and prior to startup.

The proposed pipeline to LFC would:

- Cross 19 creeks and drainages that drain into creeks or the ocean; and
- Require four HDDs and two horizontal slick bores to cross beneath six creeks/drainages (refer to Table 5-4 and Figure 5-2).

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\(^{10}\) Cathodic protection is a method of protection that connects protected metal to a more easily corroded "sacrificial metal" to act as the anode. The sacrificial metal then corrodes instead of the protected metal.
Table 5-4. Location, Type, and Length of Anticipated Bore Holes

<table>
<thead>
<tr>
<th>ID</th>
<th>Location</th>
<th>Type of Bore</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bell Creek</td>
<td>Horizontal Directional Drill</td>
<td>522 feet</td>
</tr>
<tr>
<td>2</td>
<td>Eagle Canyon Creek</td>
<td>Horizontal Directional Drill</td>
<td>808 feet</td>
</tr>
<tr>
<td>3</td>
<td>Dos Pueblos Creek</td>
<td>Horizontal Directional Drill</td>
<td>743 feet</td>
</tr>
<tr>
<td>4</td>
<td>Unnamed drainage</td>
<td>Horizontal Directional Drill</td>
<td>905 feet</td>
</tr>
<tr>
<td>5</td>
<td>Unnamed creek</td>
<td>Slick Bore</td>
<td>86 feet</td>
</tr>
<tr>
<td>6</td>
<td>Unnamed drainage</td>
<td>Slick Bore</td>
<td>322 feet</td>
</tr>
</tbody>
</table>

* The identification (ID) number is used to show the location of the bore in Figure 5-2.

Most drainages would be crossed by placing the pipe within existing roadbed or earth above an existing drainage structure, avoiding the need for boring beneath the creek/drainage. HDDs and slick bores under creeks would require entry and exit pits for each bore, work areas at either end of the bore, and the use of drilling fluid. Entry and exit pits for HDDs would be approximately 10 to 15 feet wide by 10 to 30 feet long and a maximum of 6 feet deep. The work areas would be approximately 0.5 acre in size for the entry pit and a 0.25 acre for the exit pit. For slick bores, entry pits would be 15 feet wide by 35 feet long and exit pits would be 10 feet wide by 10 feet long; these pits would be 10 to 20 feet deep. The work areas would be highly disturbed by heavy equipment, including a drilling rig, construction equipment, and vacuum trucks to handle drilling fluids. Drilling fluids would be used during both HDD and slick boring in order to lubricate the drill stem and carry cuttings to the surface. The entry pits would double as capture pits for drilling fluid that returns from the bore hole.

Within the ExxonMobil property, the new pipeline would primarily follow the existing pipeline route, including sections that are elevated above the ground to avoid sensitive areas underground. Due to the relatively small (4.5-inch) outer diameter of the proposed pipeline, additional pipe supports (above and beyond what is provided by ExxonMobil) may be installed to support the pipe within acceptable span limits. Geotechnical investigations and drilling of new caissons for the new supports would likely be required. Drilling of caissons would entail the use of a drilling rig for soil borings and drilling and setting of sono tubes. These tubes are expected to be approximately 10 to 12 inches in diameter and placed at about four to eight feet in depth.

Because pipeline construction would occur predominantly adjacent to paved streets, no extensive grading would be proposed and no construction of roads or bridges would be anticipated. Temporary diversion of streams or stabilization of soil to support heavy equipment is not expected to be required at any of the crossings. Where in-street work is required, preparation would include breaking and removing pavement with concrete saws, pavement breakers, and where necessary, with jack hammers. The broken debris would be hauled off to approved landfill sites or to a crusher plant using dump trucks. Construction would generally take place in off-peak periods, including night construction.
5.0 Alternatives Analysis

where permitted, to minimize impacts to traffic and industrial or commercial business activities. Temporary alternative vehicle and pedestrian access would be established.

Construction of a New Oil Dehydration Plant at LFC

Due to lack of capacity at existing LFC facilities, this alternative would include construction of a new oil dehydration plant at the Receiving Station in LFC (Figure 5-4).\textsuperscript{11} This plant would include a FWKO unit of roughly 3 by 5 feet in diameter for removal of free water and gas. Oil emulsion would then be routed to a small heater-treater for emulsion breaking and final separation of water. The heater-treater would be heated using an exchange medium, fired using natural gas. Produced water separated from the emulsion would be routed to a water polishing process, where entrained gas and oil would be further separated from the water. This process may additionally require heat in order to accomplish final separation.

Oil that is separated during this process would be stored, tested, and then injected into the PAAPLP Coastal Pipeline for transfer. The oil would first be deposited and stored in a 5,000 barrel capacity tank at the Receiving Station. The oil would then run through a LACT unit to measure the volume and quality of the oil. If the oil does not meet the specifications for basic sediment and water (BS&W), it would be processed a second time through the dehydration plant or batch treated until it passes these composition inspections. Once the oil meets specified standards it would be transferred to the transportation terminal facility via a new pipeline that would be routed alongside existing ExxonMobil pipelines to the PAAPLP pump station, and then directly injected into the PAAPLP Coastal Pipeline.

Oil dehydration would generate a small and widely variable produced gas stream. Gas produced is expected to be sweet, with only trace amounts of H\textsubscript{2}S. Although activation of PRC 421 is expected to produce as much as 200 thousand standard cubic feet per day (MSCFD), production would be variable since it is subject to significant “slug” flows inherent from three-phase operation of the approximately 10.2-mile-long pipeline system from PRC 421 to the Receiving Station. During the initial operation, instantaneous flow rates may be higher, reaching as high as 1,500 MSCFD. A new compressor would be used to compress this gas for metering into the ExxonMobil produced gas stream, approximately 1,100 psig. The produced gas would be transferred to the ExxonMobil gas processing facility via a new pipeline, and then admitted into this system for treatment and distribution.

\textsuperscript{11} The LFC facility is owned and operated by ExxonMobil. The Applicant contacted ExxonMobil to discuss potential commingling of production. ExxonMobil responded that they have capacity to allow for PRC 421 gas to be commingled and processed along with their production; however, they lack processing capacity to admit additional wet crude oil into their dehydration plant.
The oil dehydration plant, oil storage tanks, and LACT unit, as well as any additional ancillary structures would be constructed on the Receiving Station at LFC. These new facilities would require a minimum of 1 to 1.5 acres. Anticipated construction activities would entail operation of heavy equipment such as bulldozers, backhoes, and rollers to construct new mat foundations, utility infrastructure, and support buildings for wet oil processing at LFC. Additionally, new pipelines would be constructed to transfer gas and processed oil to facilities within LFC. Construction activities would include potential trenching for installation of below-ground pipes and drilling for construction of caissons to support above-ground pipes.

**Construction of a Class II Underground Injection Well at LFC**

Produced water disposal would be required for all process water that is removed from the oil/gas/water emulsion at the new LFC dehydration plant. Existing disposal of produced water from LFC is performed offshore at Platform Harmony under U.S. Environmental Protection Agency (USEPA), Region 9 National Pollutant Discharge Elimination System (NPDES) General Permit No. CAG280000; however, this permit does not allow for disposal of produced water from PRC 421 production.\(^\text{12}\)

Due to these restrictions, produced water would be disposed via a new Class II Underground Injection well at LFC. Construction of the well would be subject to the underlying hydrogeology and its suitability for accommodating produced water injection and would require permitting and approval by Santa Barbara County prior to construction. Additional studies would need to be performed prior to construction and permitting of the well to determine if the geology could support operation of the well.

In the event that the underground injection well at LFC was not approved, water would be pumped back to PRC 421 for reinjection at Well 421-1. This would require that an additional pipeline be constructed from LFC to PRC 421 in order to transport process water approximately 10 miles back to the existing injection well on Pier 421-1. This produced water pipeline would be constructed parallel to and within the same trench as the new oil emulsion pipeline described above. Continued use of Well 421-1 and Pier 421-1 would require that these facilities remain in operation for the life of the Project and would not be decommissioned.

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\(^{12}\) NPDES General Permit No. CAG280000 specifically states “This permit does not authorize discharges from facilities discharging to or in territorial seas of California or from facilities defined as “coastal”, “onshore”, or “stripper” (see 40 Code of Federal Regulations [CFR] Part 435, Subparts C, D, and F).” Because the produced water which is separated from PRC 421 oil comes from State Leases, it is not possible to provide for offshore disposal in Federal waters using the existing NPDES permits; unless such permit can be opened and formally amended to permit such disposal.
5.0 Alternatives Analysis

Operations

Operations would remain similar to the Project, with primary monitoring, control and emergency response provided by the EOF which is manned by a minimum of four personnel, 24 hours per day. Specific operational controls at the LFC Receiving Station would include video monitoring and a flow metering station. Venoco would provide daily visual inspection of the facility from personnel operating out of the EOF and the Receiving Station would be fenced to ensure added security. Regular facility inspections would be performed by County personnel. The proposed EOF to LFC pipeline would be monitored from the EOF and the Supervisory Control and Data Acquisition (SCADA) alarm systems would also be monitored from the EOF. The pipeline route would be inspected 26 times per year in accordance with State regulations.

Additional Potential Infrastructure Needs

This alternative may also result in the need for additional infrastructure to support increased power demand and fire protection needs associated with processing PRC 421 output at LFC. If additional power demand cannot be met directly by ExxonMobil, this alternative may require a commitment from Pacific Gas and Electric (PG&E) and possible addition of new service lines into LFC in order to meet the anticipated electrical demand. Also, with the expansion of operations at LFC, additional water storage for fire protection would be required onsite. Minor improvements to the existing ExxonMobil fire system may be possible; however, if expansion of the existing system is not possible, then construction of new water wells, pumps, and tanks, and/or new water mains to connect with existing utility systems would be required.

Environmental Impact Analysis

Introduction to Alternative Impact Analysis

Due to the Processing PRC 421 Oil at Las Flores Canyon Alternative being substantially different from the other alternatives, the analysis for this alternative has been partitioned to address each of the three primary impact areas:

1. **PRC 421 Vicinity Impacts**: Construction and operation activities in the vicinity of PRC 421 and the EOF, including reactivation of PRC 421-2, and construction and improvements of related infrastructure;

2. **EOF to LFC Pipeline Impacts**: Construction and operation of the new three-phase pipeline from the EOF to LFC; and

3. **LFC Vicinity Impacts**: Construction and operation of new facilities at LFC to receive, process, and distribute production from PRC 421.

**PRC 421 Vicinity Impacts**: Under this alternative, potential impacts related to construction and operation in the vicinity of PRC 421 and the EOF would be similar to
those identified for the Project due to the similarity of these activities to the Project, including: reactivating PRC 421-2; performing upgrades to Pier 421-2 and Well 421-2; installing process monitoring, facility control, and power components; installing an ESP in Well 421-2; installing new infrastructure on Pier 421-2 (e.g., pig launcher, check valve, safety equipment); constructing power and communication cables between Pier 421-2 and the EOF; and decommissioning and abandoning Pier 421-1 and Well 421-1.

The primary differences between the Project and this alternative involve the construction of a new 3.826-inch pipeline from PRC 421-2 to the EOF (as opposed to repair, extension, and lining of the existing 6-inch pipeline); installation of additional infrastructure on Pier 421-2 (e.g., chemical tanks, isokenetic sampler, etc.); increased size of the ESP that would be installed in Well 421-2; and transporting oil/gas/water emulsion directly to LFC instead of using the EOF for processing of oil. Therefore, under this alternative, impacts for construction and operation in the vicinity of PRC 421 would generally be similar to the Project; however, impacts associated with use of the EOF would be reduced or eliminated and impacts at PRC 421-2 would incrementally change. Therefore, the analysis for this portion of the alternative relies primarily on the analysis in this EIR for the Project and includes a discussion of how potential impacts would be different for this alternative.

EOF to LFC Pipeline Impacts: Construction and operation of the proposed 8.4-mile-long portion of the pipeline from the EOF to the mouth of LFC would have similar impacts to construction and operation of the Line 96 Pipeline Modification Project, which was completed in January 2012. The new pipeline from the EOF to LFC would primarily traverse the same ROW that was analyzed for the Line 96 pipeline in the Line 96 EIR, would require similar construction and operational activities, and would result in similar impacts. Therefore, this analysis summarizes, expands upon as needed, and incorporates by reference impacts and associated mitigation measures from the Line 96 EIR for the 8.4 miles of pipeline from the EOF to the mouth of LFC consistent with State CEQA Guidelines section 15152. However, the proposed northern extension of this pipeline that would run for 1.3 miles up LFC along Corral Canyon Road would not follow a route addressed in the Line 96 EIR. Impacts associated with the LFC pipeline to the Receiving Station are addressed in greater detail (see discussion for LFC below). Potential adverse impacts associated with construction of the Line 96 pipeline, as identified in the Line 96 EIR, are summarized in Table 5-5. Findings from the Line 96 EIR, including potential impacts and associated mitigation measures, are contained in Appendix I. The full Line 96 EIR is available on the County of Santa Barbara’s website at http://www.sbcountyplanning.org/energy/projects/VenocoLine96.asp.
Table 5-5. Line 96 EIR Previously Identified Adverse Impacts Relevant to Constructing and Operating a New Pipeline to LFC

<table>
<thead>
<tr>
<th>Type of Impact</th>
<th>Number of Impacts</th>
<th>Resource Areas Potentially Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I: Significant adverse impact that remains significant after mitigation.</td>
<td>5</td>
<td>• Hazards and Hazardous Materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hydrology, Water Resources, and Water Quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biological Resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Land Use, Planning, and Recreation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public Services</td>
</tr>
<tr>
<td>Class II: Significant adverse impact that can be eliminated or reduced below an issue area’s significance criteria.</td>
<td>17</td>
<td>• Cultural, Historical, and Paleontological Resources (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Geological Resources (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hydrology, Water Resources, and Water Quality (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biological Resources (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agricultural Resources (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transportation and Circulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Noise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aesthetics/Visual Resources</td>
</tr>
<tr>
<td>Class III: Adverse impact that does not meet or exceed an issue area’s significance criteria.</td>
<td>16</td>
<td>• Aesthetics/Visual Resources (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public Services (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cultural, Historical, and Paleontological Resources (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agricultural Resources (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Geological Resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Air Quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hydrology, Water Resources, and Water Quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Noise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Energy and Mineral Resources</td>
</tr>
</tbody>
</table>

Source: Line 96 Modification Project EIR

The analysis of the proposed pipeline from the EOF to LFC also accounts for lessons learned from environmental monitoring of construction and drilling operations conducted for completion of Line 96 in October 2011. In particular, construction of the new pipeline from the EOF to the mouth at the LFC would involve HDD at four sites and slick bores at two sites in order to run the pipeline under major drainages and other features. Despite inclusion of multiple mitigation measures, during construction of Line 96, several spills, releases of fluids, and “frack-outs” occurred. Details of these releases, clean up, and mitigation responses are included in Appendix J. Construction of the new pipeline may result in similar challenges, especially with regard to HDD at the same locations. Therefore, this past experience was considered during the analysis for this alternative and is included in the discussions for relevant resource areas.

LFC Vicinity Impacts: This alternative also includes construction of new facilities within LFC, including 1.3 miles of pipeline and a 1- to 1.5-acre Receiving Station. These new facilities were not considered under the Project or in the Line 96 EIR. Therefore, this alternative has the potential to result in additional impacts at LFC that were not previously identified. Construction and operation of an oil dehydration plant with a FWKO unit, heater-treater, and water polishing unit, 3,000 to 5,000 barrel oil storage tank and several pipelines, a compressor station, a produced water injection well and
supporting facilities would all create potential impacts. Construction would require use of heavy equipment and result in ground disturbance within the 1- to 1.5-acre Receiving Station and along the pipeline corridors. Major construction activities at LFC, including mass grading, trenching, and facility construction, as well as operations were analyzed in the SYU/LFC EIR. While these documents were consulted as part of this analysis, distinct impacts were identified based on the description of the alternative and existing conditions at LFC.

Analysis of construction and operational impacts of this alternative includes transporting an oil/water/gas emulsion through the new pipeline to LFC (tightlining) and produced water injection at LFC. However, this analysis does not address potential impacts related to additional changes that would need to occur if these elements of the alternative are not possible (e.g., transporting process produced water back to PRC 421-1 via pipeline for injection disposal). Therefore, additional analysis would need to be performed prior to implementation of this alternative if tightlining or produced water injection at LFC is not possible.

Geological Resources

**PRC 421 Vicinity Impacts:** Geologic hazards related to reactivation of PRC 421-2, decommissioning and removal of PRC 421-1, and installation of new power and communication cables between Pier 421-2 and the EOF would be similar to the Project. However, under this alternative, four chemical tanks ranging from 55 to 350 gallons and an isokinetic sampler with a 10-gallon oil storage bottle would be located on Pier 421-2. These new facilities would be potentially vulnerable to impacts associated with geologic hazards, particularly from a seismic event. Therefore, Impacts GEO-1, GEO-3, and GEO-4 would be incrementally more severe than under the Project, but they would remain less than significant with inclusion of MMs GEO-1a through GEO-1d, MMs GEO-2a through GEO-2c, MM GEO-3, and MMs GEO-4a through GEO-4d. Impacts GEO-2 and GEO-5 would remain the same as under the project at MMs GEO-2a through GEO-2c would still apply. In the event that use of tightlining to transport the oil/water/gas emulsion from the EOF to LFC is not possible, an additional 1,000 to 1,500-barrel breakout tank, VRU control device, flare, and oil shipping pump would also be located on Pier 421-2, with similar impacts and mitigation measures described above.

**EOF to LFC Pipeline Impacts:** Geologic hazards related to construction of a pipeline between the EOF and LFC would be similar to those identified in the Line 96 EIR, including slope stability, erosion and sedimentation, expansive soils, and faulting and seismic activity, as discussed below.

Although most of the proposed pipeline route would traverse gently to moderately sloped terrain and follow existing roads wherever possible, it would cross steep creek banks and limited human-made embankments. Use of directional drilling would
minimize grading of steep slopes and sedimentation of creeks and drainages. Impacts under this alternative would be similar to Impact GEO-1 of the Line 96 EIR with potential for ground-disturbance from pipeline construction and/or oil spill remediation to cause localized slumping or erosion of unconsolidated soils. This impact would be less than significant since slumping or erosion would likely be shallow and localized, and would likely not affect the integrity of existing infrastructure.

Potential impacts associated with sedimentation of creeks and drainages that cross the pipeline route previously identified in Impact GEO-2 in the Line 96 EIR would be potentially significant, but mitigable with implementation of MM GEO-2, Erosion Control Measures. Under this Alternative, the proposed EOF to LFC pipeline would cross soils with moderate to high expansion potential, which could compromise pipeline structural integrity. This would result in potentially significant impacts similar to Impact GEO-3 from the Line 96 EIR. Application of MM GEO-3, Expansive Soil Control Measures, to this Alternative would reduce this impact to less than significant.

As discussed in the Line 96 EIR, the proposed pipeline would be constructed in a seismically active region proximate to a number of earthquake faults, but would not be located within an Alquist-Priolo fault rupture hazard zone. Additionally, no known active or potentially active faults trend towards or traverse the proposed pipeline alignment. Under this alternative, seismic impacts would be similar to those identified under Impact GEO-4 from the Line 96 EIR, and would be potentially significant, but subject to feasible mitigation, including implementation of MM GEO-4a, Implementation of Site-Specific Geotechnical and Seismic Studies Results, MM GEO-4b, Seismic Resistant Design, and MM GEO-4c, Seismic Inspection. MM GEO-4b and 4c from the Line 96 EIR would help reduce this impact to a less than significant level. MM GEO-4a, Completion of a Site-Specific Geotechnical and Seismic-Hazard Study, and implementation of recommended measures, would be modified to include additional study for the LFC portion of the pipeline, not previously studied and implementation of all recommendations from both studies.

**LFC Vicinity Impacts:** This alternative includes construction of new facilities and increased processing of oil and gas at LFC, within facilities located generally on existing graded pads located approximately 8.4 miles west of PRC 421 and the EOF. The new oil processing and transport facilities, as well as existing gas processing facilities that would support increased throughput, could be susceptible to geological hazards.

Installation of a new 1.3-mile pipeline up LFC via Corral Canyon Road and construction of oil processing facilities on up to 1.5 acres on an existing graded Pad in the upper canyon could expose these new facilities to seismic, slope stability and soil hazards.

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Seismic activity is relatively common in the project area. For example a 4.6-magnitude earthquake occurred on May 29, 2013, off the coast of Santa Barbara with the epicenter estimated to be approximately 1.5 miles from the EOF (USGS 2014).
5.0 Alternatives Analysis

Regional active faults in the vicinity, such as the San Andreas, Santa Ynez and Red Mountain Faults, could cause groundshaking with potential damage to proposed facilities. Proposed facilities within LFC could also be exposed to damage hazards, such as expansive soils, landslides, mudflows, and deep creep, particularly along sections of the proposed pipeline corridor. Trenching and grading could also expose soils to erosion with potential for sedimentation into Corral Canyon Creek. These impacts would be considered less than significant with the application available Best Management Practices (BMPs) for erosion control, mitigation measures and construction practices consistent with the California Uniform Building Code and industry standards as set forth in MM GEO-4a (Implementation of Site-Specific Geotechnical and Seismic Studies Results), MM GEO-4b (Seismic Resistant Design), and MM GEO-4c (Seismic Inspection) from the Line 96 EIR.

Safety

PRC 421 Vicinity Impacts: Safety impacts related to this alternative would be more severe than the Project. The existing 6-inch pipeline from Pier 421-1 to the EOF and Line 96 would not be used to transfer oil, and there would be no processing of oil and gas at the EOF as part of this Alternative; therefore, Impacts S-1, S-6, and S-7 and associated mitigation measures would not apply.

Safety impacts related to the caisson at Pier 421-2 and the existing timber bulkhead or rip-rap seawall would remain the same; Impacts S-2 and S-3 would remain the same as under the Project. These impacts would remain potentially significant but subject to mitigation through implementation of MM S-2a, MM S-3a, and MM S-3b. Impact S-4 would be incrementally more severe and would remain significant and unavoidable due to added potential for release from new facilities at Pier 421-2 (e.g., chemical tanks); implementation of MM S-4a through S-4e would reduce, but not eliminate these impacts. Impact S-5 (potential release from the 3-inch flowline) would remain similar to the Project due to installation of a 3.826-inch pipeline from PRC 421-2 to the EOF, with potential risks and safety impacts. Application of MM S-5a through S-5c, which require pipeline warning markers, development of an Emergency Action Plan (EAP), and safety inspection and maintenance of pipeline, updated to apply to the new pipeline, would reduce these impacts to less than significant. Increased fire hazards identified in Impact S-8 at PRC 421-2 would remain similar to the Project, while those at the EOF would be eliminated, and MM S-8 (Fire Prevention and Suppression) would continue to apply.

EOF to LFC Pipeline Impacts: A low frequency risk associated with spills of the oil/water/gas/emulsion from the new EOF to LFC pipeline would be similar to but more severe than Impact S-6 (see also Line 96 EIR Impact H-3) and would be considered an significant and unavoidable impact. Impact severity would be incrementally increased as transport of the three-phase emulsion product would prohibit use of a volumetric-based leak detection system and instead rely upon low pressure leak detectors, which would
reduce the effectiveness of leak detention and prevention measures. Application of MMs similar to HM-3 from the Line 96 EIR, which requires installation of automated block valves and check valves, would reduce the severity of this impact, but would not completely eliminate its potential. In addition, increased risk of fire hazards identified in Impact S-8 associated with transport of the oil/water/gas emulsion to LFC would remain similar to the Project, with the addition of a new smaller pipeline along the Line 96 corridor. This new pipelines would incrementally increase risk of fire hazards to uses such as Ellwood School and residential areas. MM S-8 (Fire Prevention and Suppression) would need to be modified to ensure that the existing Fire Suppression and Preparedness Plan address the new EOF to LFC pipeline.

LFC Vicinity Impacts: Construction and operation of new facilities and increased throughput at existing facilities at LFC would incrementally increase safety risks at LFC associated with a potential oil spill or fire. Under this alternative, new oil processing and conveyance facilities would be constructed within LFC to process the oil/gas/water emulsion from PRC 421. Gas separated from this emulsion would be transferred to ExxonMobil’s POPCO facility for processing, thereby increasing throughput at this facility. Although these existing facilities would continue to be operated consistent with industry standards and local, state, and federal regulations, additional processing at LFC would incrementally increase the risk of a release of oil or other hazardous materials at LFC with subsequent release into the environment. Although the probability of an environmental release of oil or other hazardous materials during operations is extremely low, the probability is not zero; therefore, this impact would be significant and unavoidable.

Increased processing and associated storage and transportation of hazardous materials, such as liquid natural gas, would increase potential risks related to fire. The severity of this impact could be reduced by developing an EAP to specify measures to be taken in emergency scenarios for the new facilities at the Receiving Station at LFC, as well as an Oil Spill Contingency Plan (OSCP) including site-specific procedures for response to a release from the Receiving Station at LFC, in accordance with applicable State and Federal regulations. Additionally, performance of daily facility inspections to ensure proper function of oil processing and transfer facilities and associated safety mechanisms would further reduce this impact, including immediate clean up or repair of any detected leaks to prevent public exposure to any hazards, as well as installation of spill containment berms at the Receiving Station that could limit releases into the environment, particularly Coral Canyon Creek. Finally, a measure that requires preparation of a Fire Prevention and Preparedness Plan for the new Receiving Station at LFC would be necessary to reduce the risks associated with fires at the new facility. These MMs would reduce potential impacts such that they would be less than significant.
5.0 Alternatives Analysis

Hazardous Materials

PRC 421 Vicinity Impacts: Potential hazardous materials impacts in the vicinity of PRC 421 related to contaminated sediments along the access road at PRC 421-2 or that could be released with decommissioning of PRC 421-1 would be similar to the Project as described in Impacts HAZ-1 (Exposure of the Public or Environment to Hazardous Materials). Application of MM HAZ-1a through HAZ-1e would apply to this Alternative and would reduce impacts to a less than significant level. Impact HAZ-2 (Release of Contaminated Sediment for PRC 421-2 Caisson during Project Operation) would remain similar to the Project under this Alternative and application of MM GEO-4a, MM GEO-4d, MM S-2a, and MM HAZ-1b would reduce this impact to less than significant.

EOF to LFC Pipeline Impacts: Construction of the pipeline from the EOF to LFC would require the use of heavy equipment with the potential for accidental release of fuels, oils, and other hazardous materials during construction, as addressed in Impact WQ-2 in the Line 96 EIR. Implementation of MMs requiring proper personnel training, as well as development, approval, and implementation of a Spill Prevention Control and Countermeasure Plan (SPCCP), would reduce these impacts to a less than significant level. Potential impacts of spill related to pipeline transportation of the oil/water/gas emulsion are addressed in Safety above.

LFC Vicinity Impacts: This alternative includes construction of new facilities and increased processing of oil and gas at LFC, which has the potential to result in a spill of hazardous materials at LFC through routine transport, use, or disposal of such materials, including oils and lubricants during construction activities. Construction under this alternative would require use of heavy construction equipment, such as excavators and backhoes with potential for accidental release of fuels, oils, and other hazardous materials during construction. A release of hazardous materials in LFC may contaminate Corral Canyon Creek, a sensitive water body. Such spills during construction are considered low probability, so while malfunctions or accidents could lead to release of hazardous materials, the incident would be minor and localized. With implementation of applicable MMs such as proper training of personnel and preparation of a Construction Phase SPCCP, which would mandate storage and construction site housekeeping practices, identify parties responsible for monitoring and spill response, and set forth actions required if a spill occurs, impacts would be less than significant.

Operation of this alternative would entail increased processing of oil and gas at LFC, as well as associated storage and pipeline transportation of these materials in and between onsite facilities. Potential impacts of spill related to pipeline transportation of the oil/water/gas emulsion are addressed in Safety above.
Air Quality and GHGs

PRC 421 Vicinity Impacts: Potential Air Quality would be similar to the Project in the vicinity of PRC 421 and Impacts AQ-1 through AQ-4 would remain essentially the same; associated mitigation measures (MMs AQ-1a through AQ-1e and MM AQ-4) would continue to apply. Construction of the new 3.826-inch pipeline from PRC 421-2 to the EOF tie-in could require incremental increases in construction beyond the Project with slightly higher air emissions. However, short-term construction emissions addressed in Impact AQ-1 remain less than significant and the same MMs apply.

Operational emissions under this Alternative would be similar to or slightly greater than the Project; reductions in emissions from discontinuing processing at the EOF would be offset by increased emissions from processing at LFC. The larger and more powerful ESP at Pier 421-2 would incrementally increase local air emissions from power plants generally outside of the local air basin. Therefore, under this alternative, operational emissions remain similar to the Project and Impact AQ-2 would remain less than significant.

Under this alternative, potential odor impacts would be reduced in the vicinity of PRC 421 as oil would not be processed at the EOF and potential increased odor impacts to nearby residents would be eliminated. Although minor odors associated with production at PRC 421-2 and transportation from PRC 421 to LFC may occur, Impact AQ-3 would remain less than significant in the PRC-421 vicinity.

GHG emissions would incrementally increase under this alternative due to operation of a more powerful ESP at Pier 421-2, substantial new construction with associated heavy equipment emissions from installation of the new pipeline and additional facilities at LFC, and the ongoing operation of the new facilities. Under a “zero net increase” threshold for GHG emissions, impacts would be potentially significant. However, this potential impact is addressed by Impact AQ-4 and associated MM AQ-4 (Greenhouse Gas Monitoring and Reduction Strategies) would apply to reduce this impact to less than significant.

EOF to LFC Pipeline Impacts: Construction of the new EOF to LFC pipeline would increase emissions due to operation of construction machinery and increased construction traffic. Impact AQ-1 from the Line 96 EIR identified such construction emissions as less than significant and the new pipeline would result in similar emissions, which would not exceed the significance threshold of 25 tons (Table 5-6). MMs AQ-1a (Measures to Reduce Dust Emissions) and AQ-1b (Measures to Reduce NOx Emissions) from the Line 96 EIR would apply, reducing NOx emissions by approximately 65 percent.
5.0 Alternatives Analysis

Table 5-6. Line 96 and EOF to LFC Pipelines Construction Emissions

<table>
<thead>
<tr>
<th></th>
<th>Annual Emissions (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CO</td>
</tr>
<tr>
<td>Line 96 Pipeline Construction</td>
<td>73.49</td>
</tr>
<tr>
<td>Exceeds Significance Threshold of 25 Tons?</td>
<td>N/A</td>
</tr>
<tr>
<td>New EOF to LFC Pipeline Construction</td>
<td>83.87</td>
</tr>
<tr>
<td>Exceeds Significance Threshold of 25 Tons?</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1 Emissions Calculations for the EOF to LFC pipeline in Table 5-5 include the 1.3-mile extension up LFC.

LFC Vicinity Impacts: This alternative would create new construction emissions from facility development at LFC, including trenching, grading and excavation, as well as construction of new facilities, such as pipelines, storage tanks and processing equipment. Because overall construction under this alternative would require more construction than the Project, total construction emissions could exceed 25 tons of NOₓ emissions in the first year. However, compliance with Rule 804 and implementation of offsets would reduce the impact to less than significant levels. For all other criteria pollutants, construction emissions anticipated in Impact AQ-1 would remain well below 25 tons per year. MM AQ-1a and MM AQ-1b would further reduce this impact to a less than significant level.

Operational emissions at the LFC under this alternative would be similar to those identified in Impact AQ-2 that would occur at the EOF under the Project, but they would occur at the LFC, an industrialized oil production area removed from urban populations, rather than at the EOF. Therefore, operational emissions impacts at the LFC Facility would be less than significant. Impacts associated with GHG emissions would incrementally increase as discussed above. Under a “zero net increase” threshold for GHG emissions, impacts would be potentially significant. However, this potential impact is addressed by Impact AQ-4 and associated MM AQ-4 would apply to reduce this impact to less than significant.

Hydrology, Water Resources, and Water Quality

PRC 421 Vicinity Impacts: Impacts to hydrology and water quality would be similar to the Project, with an incremental increase associated with trenching for construction of the 3.826-inch line between Pier 421-2 and the EOF, and associated temporary construction impacts to marine water quality (Impact WQ-1) and wetlands (Impact WQ-2) would apply. These impacts would remain less than significant with implementation of MM HAZ-1a though HAZ-1d (Personnel Training, Phase I Environmental Site Assessment, Sediment Sampling, Removal Action Plan, Performance Security), WQ-1a (Silt Curtain), and WQ-1b (Water Quality Certification) for Impact WQ-1, and MM WQ-2 (Wetland Avoidance) and TBIO-1a through TBIO-1d (Locate Power Cable and Pipelines Outside Wetland Areas, Project Biological Monitors, Restoration Plan, and Protect Stockpiles of Excavated Material) for Impact WQ-2.
Impact WQ-3 (Oil Spill Impacts to Surface and Marine Water Quality) would remain similar to the Project due to potential for spills from restarting Well 421-2 and from transporting oil/gas/water emulsion to the EOF through a new 3.826-inch pipeline. While these new facilities would have a low level of risk for leaks or rupture, they are located in close proximity to the marine environment where any size spill has the potential to adversely affect sensitive marine species. As result, impacts would remain significant and unavoidable and MMs WQ-3a (Pipeline Monitoring) and WQ-3b (Storm Water Pollution Prevention Plan) would continue to apply.

EOF to LFC Pipeline Impacts: The new EOF to LFC pipeline could impact onshore waterways during construction (e.g., HDD), as well as during operation due to potential leaks. Construction impacts under this alternative would remain similar to those identified under Impact WQ-2 from the Line 96 EIR, including potential sedimentation and impacts to creek water quality and downstream impacts to the marine environment. Impacts would remain potentially significant and mitigation measure WQ-2a (Construction Storm Water Pollution Prevention Program) from the Line 96 EIR would apply. Similarly, construction related impacts to water quality from HDD for the new EOF to LFC pipeline would be similar to those associated with Impact WQ-3 from the Line 96 EIR, as drilling would occur in the same locations and mitigation measure WQ-3b (Frack-Out Contingency Plan) would apply. However, based on experience with installation of Line 96 (e.g., releases into Bell Canyon Creek and sensitive species impacts) and other directional drilling operations, incidents of hazardous material spills or environmental releases of drilling fluids are considered to be reasonably foreseeable and not subject to full mitigation (see Appendix J for details of Line 96 spills). Therefore, under this alternative, Impact WQ-3 would be considered significant and unavoidable and MM WQ-3a would be updated to require a review of the monitoring reports from the construction of Line 96 during development of the frack-out contingency plan.

Operation of the new EOF to LFC pipeline would have the potential for rupture or leak and resulting release of oil into the environment, possibly degrading surface and groundwater quality. Therefore, Impact WQ-4 from the Line 96 EIR would apply to this Alternative and MMs WQ-4a (Implementation of a Storm Water Pollution Prevention Plan) and WQ-4b (Non-Point Source Runoff Water Quality Testing) from the Line 96 EIR would apply; however, impacts would remain significant and unavoidable.

LFC Vicinity Impacts: Construction of 1.3 miles of pipeline and the new oil processing facilities and an injection well at the 1- to 1.5-acre Receiving Site, and operation of these facilities within LFC could adversely affect hydrology, water resources, and water quality along Corral Canyon Creek and within the groundwater basin. Trenching, excavation, and grading for the new pipeline that would closely parallel and cross Corral

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14 During normal drilling operations, drilling fluid travels up the borehole into a pit. When the borehole becomes obstructed or the pressure becomes too great inside the borehole, the ground fractures and fluid escapes to the surface. This is referred to as a “frack-out.”
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Canyon Creek and for the Receiving Station proximate to the creek could lead to sedimentation and potential for polluted runoff to impact creek water quality, particularly where the pipeline closely parallels and crosses the creek. These impacts would be considered potentially significant, but subject to feasible mitigation through application of BMPs identified in MM WQ-3b (Construction Storm Water Pollution Prevention Plan) and MM MBIO-4a (Oil Spill Contingency Plan), which would reduce potential water quality impacts to be less than significant.

Operational impacts to creek water quality under this alternative could occur due to accidental spills of oil or other hazardous materials during processing or storage of oil at the Receiving Station or during pipeline transport within LFC, with potential to enter Corral Canyon Creek. The severity of this impact could be reduced by: requiring personnel training; installation of spill containment berms at the Receiving Station that could limit releases into the environment, particularly Coral Canyon Creek; and development and implementation of a SPCCP for new operations at LFC. Although these measures would reduce potential impacts, they would still remain significant and unavoidable due to the presence of sensitive habitat in close proximity to these facilities.

Under this alternative, a produced water injection well would be constructed at the Receiving Station in LFC and used to inject the produced water into the groundwater basin. The potential depth of this well is unknown, although in order to provide separation from productive groundwater resources, it is likely to be deep. The Vaqueros and Sespe Formations are important aquifers underlying Corral Creek Canyon and LFC with shallow alluvium also historically providing irrigation water (Science Applications, Inc. 1984). While detailed information on well depth and deeper groundwater characteristics are unknown, produced water injection to the groundwater under this alternative may create potentially significant impacts to groundwater resources. In order to mitigate such impacts, prior to construction, the Applicant would be required to prepare and complete a geologic analysis of underlying geologic formations to determine suitability for injection and possible impacts to groundwater resources. If impacts cannot be avoided or mitigated, groundwater injection would be prohibited. In the event that produced water injection at the Receiving Station is not possible, a produced water pipeline would likely need to be constructed from LFC back to Pier 421-1 for reinjection at Well PRC 421-1. This would require reactivation of PRC 421-1 rather than decommissioning, with this facility remaining in operation for the next 20 or more years.

Marine Biological Resources

PRC 421 Vicinity Impacts: Potential marine biological resource impacts in the vicinity of PRC 421 would be similar to the Project as identified in Impacts MBIO-1 through MBIO-6 related to similar surf zone construction and potential for release of hazardous materials or oil during operations. Potential impacts to grunion spawning would remain
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similar and application of MM MBIO-1 (Avoid Grunion Spawning Season/Use of Biological Monitor) would reduce this impact to less than significant. Construction-related turbidity and disturbance impacts to invertebrates and other marine organisms identified in Impact MBIO-2 would remain less than significant with application of MM WQ-1a (Silt Curtain), MM WQ-1b (Water Quality Certification), MM HAZ-1c (Removal Action Plan), and MM HAZ-1d (Performance Security). Noise impacts to marine life during construction would remain similar to those identified in Impact MBIO-3 as the same types of construction would occur and would remain less than significant. Operational impacts associated with release of oil to the marine environment as identified in Impacts MBIO-4 through MBIO-6 would remain similar under this alternative due to the similar potential for releases of oil and resultant severity of impacts, with MBIO-4 and MBIO-5 remaining significant and unavoidable and MBIO-6 remaining less than significant. Although backup containment mechanisms are provided, potential release of chemicals from storage tanks on PRC 421-2 may incrementally increase the severity of impacts to marine biological resources associated with accidental releases under this alternative. MM MBIO-4a (Oil Spill Contingency Plan) and MM MBIO-4b (Bird Island Protection Plan), as well as relevant contingency planning and spill response mitigations contained in Sections 4.2, Safety; 4.5, Hydrology, Water Resources, and Water Quality; and 4.7, Terrestrial Biological Resources, would remain applicable to this alternative.

EOF to LFC Pipeline Impacts: The new EOF to LFC pipeline would have limited potential for direct impacts to marine biological resources due to its inland location. However, accidental environmental releases or oil spills into creeks due to construction or operation of this alternative as identified in Impacts BIO-2, BIO-3, and BIO-4 from the Line 96 EIR, and releases into the marine environment as discussed in Impact MBIO-4 and MBIO-5 could impact marine biological resources located offshore of the 19 creeks and drainages crossed by this potential pipeline. MM MBIO-4a (Oil Spill Contingency Plan) and Line 96 EIR MM BIO-2a (Native Habitat and Special Status Species Protection Plans) and Line 96 EIR MM BIO-2b (Prepare Native Habitat Restoration Plans) would help reduce, but not eliminate potential impacts which would remain significant and unavoidable.

LFC Vicinity Impacts: Construction and operation of new oil processing facilities and the proposed 1.3-mile-long pipeline in LFC would generally be well removed from the marine habitats, with the Receiving Station located 1.5 miles from the shoreline. However, all new LFC facilities border or are near to Corral Canyon Creek, which drains to the Pacific Ocean. As such, construction and operational activities at LFC may result in indirect impacts to marine biological species. During construction of the Receiving Station and pipeline, trenching and excavation may expose soils to erosion and operation of heavy equipment may lead to accidental spills with sediment or contaminated runoff moving into Corral Canyon Creek and receiving downstream ocean waters. Such impacts would be considered less than significant with inclusion of BMPs
for erosion control, MM WQ-3b (Storm Water Pollution Prevention Plan), and MM TBIO-1d (Protect Stockpiles of Excavated Material).

In addition, during project operation, accidental release of oil or other materials from the pipeline or Receiving Station could enter Corral Canyon Creek and potentially reach receiving marine habitats. The pipeline corridor within LFC would run north along Canyon Creek for 1.3 miles and cross the creek four times with most of the pipeline located within 100 feet of the creek. In addition, the Receiving Station is located on a bluff above the creek. Although releases or spills are a low probability, oil or other released materials could be carried downstream into the marine environment. Impacts to marine biological resources would be considered less than significant due to the small quantities likely released, the distance from the shoreline, and the application of MMs WQ-3b (Storm Water Pollution Prevention Plan), MBIO-4a (Oil Spill Contingency Plan), TBIO-2a (Oil Spill Contingency Plan, Biological Resource Protection), and TBIO-2b (Oil Spill Contingency Plan, Habitat Restoration).

**Terrestrial Biological Resources**

**PRC 421 Vicinity Impacts:** Potential construction and operational impacts to terrestrial biological resources in the vicinity of PRC 421 would be similar to the Project due to similar effects associated with the reactivation of Pier 421-2 and decommissioning of Pier 421-1. Impact TBIO-1 and construction-related impacts to terrestrial biological resources, particularly wetlands located along the access road, would remain the same as under the Project and would be less than significant with implementation of MM TBIO-1a through TBIO-1f (Locate Power Cable and Pipelines Outside Wetland Areas; Project Biological Monitors; Restoration Plan; Protect Stockpiles of Excavated Material; Equipment Use, Storage, and Maintenance; and Biological Enhancement Activities). These measures would ensure avoidance of Environmentally Sensitive Habitat Areas (ESHA); biological monitoring during construction; and protection, restoration and enhancement of native habitats as part of construction.

Operational impacts would also be similar to the Project, with potential for oil spills originating from the PRC 421-2 well, caisson, or vicinity pipelines to impact terrestrial biological resources; however, potential for chemicals to spill from new storage tanks on PRC 421-2 could incrementally increase impact severity. Impacts would remain significant and unavoidable as identified in Impact TBIO-2, with potential impacts to sensitive species, such as the western snowy plover, California least tern, and sandy beach tiger beetle, and sensitive coastal wetlands, such as the Devereux Slough and Bell Canyon Creek Estuary in the vicinity of PRC 421. Although spills are forecast to be small (e.g., 1.7 barrels), MM TBIO-2a (Oil Spill Contingency Plan, Biological Resource Protection) and MM TBIO-2b (Oil Spill Contingency Plan, Habitat Restoration) would serve to reduce, but not fully mitigate this impact.
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EOF to LFC Pipeline Impacts: Impacts to terrestrial biological resources related to construction, HDD, and potential leaks during operation of the EOF to LFC pipeline would be similar to those identified in the Project and/or Line 96 EIRs. Trenching, grading, HDD, and installation of the EOF to LFC pipeline could impact rare, threatened, or endangered species (e.g., California red legged frog, tidewater goby) through direct mortality or habitat loss as described in Line 96 EIR Impacts BIO-2 (Construction Impacts on Sensitive Onshore Biological Species) and BIO-3 (Construction Impacts on Onshore Biological Resources, Native Habitat, Wetlands and Drainage to the Ocean). Potential impacts to sensitive aquatic species and habitats from frack-outs would be of particular concern. MMs BIO-2a (Native Habitat and Special Status Species Protection Plan) and BIO-2b (Native Habitat Restoration Plan) from the Line 96 EIR would reduce but not eliminate these impacts. Although the Line 96 EIR found that these measures would fully mitigate impacts, lessons learned (i.e., frack-outs and spills) during Line 96 construction indicate that the potential for significant impacts would remain.

Operation of the new EOF to LFC pipeline has the potential to result in an accidental spill, with such spills and subsequent cleanup efforts creating potentially significant impacts to environmentally sensitive habitats such as creeks and estuaries and threatened, endangered, candidate and other special status species, as discussed in Line 96 EIR Impact BIO-4. Spills for the proposed pipeline could potentially release dozens or hundreds of barrels of oil into one or more of the 19 creeks and drainages that this pipeline would cross.\(^{15}\) While the application of MMs such as MM HM-3 (Automated Block Valves/ Additional Check Valves) from the Line 96 EIR and MM MBIO-4a (Oil Spill Contingency Plan) would reduce the severity of such an impact, potential impacts from a spill would remain significant and unavoidable.

LFC Vicinity Impacts: Construction and operation of 1.3 miles of pipeline and new oil processing facilities on up to 1.5 acres in LFC would occur primarily in previously disturbed areas, but often in close proximity to Corral Canyon Creek. This creek supports more than 3 acres of riverine and freshwater forested/shrub wetland habitat in the vicinity of the oil pipeline and Receiving Station proposed in this Alternative (National Wetlands Inventory 2014). These habitats are likely to support sensitive aquatic species, such as tidewater goby, California red-legged frog, southwestern pond turtle, and southern steelhead trout.

Construction of the Receiving Station and pipeline would entail grading, excavation, and trenching primarily within disturbed areas, which could lead to soil erosion, sedimentation, or accidental spills during construction which could directly or indirectly impact Corral Canyon Creek. While the Receiving Station is located on a bluff above the creek, the pipeline would run parallel to and within 100 feet of the creek for 0.50 mile.

\(^{15}\) For the somewhat larger Line 96 oil pipeline, the Line 96 EIR estimated that a low of a potential 40 barrels could be spilled into Dos Pueblos Creek and a high of 237 barrels into Las Llagas Creek.
including a 500-foot reach that supports areas of recovering riparian vegetation, as well as creek-crossings at four locations. Construction in these reaches could create direct and indirect impacts to the creek and sensitive resources similar to the types of impacts (for other Gaviota area streams) described in Impact BIO-2 (Construction Impacts on Sensitive Onshore Biological Species) and Impact BIO-3 (Construction Impacts on Onshore Biological Resources, Native Habitat, Wetlands and Drainage to the Ocean) in the Line 96 EIR. Given the primarily disturbed nature of these areas and the absence of directional drilling, MMs BIO-2a (Native Habitat and Special Status Species Protection Plan) and BIO-2b (Native Habitat Restoration Plan) from the Line 96 EIR would reduce these impacts to less than significant.

Operational impacts under this Alternative would also have the potential to impact terrestrial biological species due to the transport of oil/water/gas emulsion through 1.3 miles of pipeline and oil processing at the Receiver Station. Although the chances of operational oil spills from these facilities is extremely low, the proximity of the pipeline and Receiver Station to Corral Canyon Creek, the potential for accidental releases, and the presence of special status species and Environmentally Sensitive Habitats would create potentially significant impacts to terrestrial biological resources. Although spills are forecast to be small and of low probability, application of MMs TBIO-2a (Oil Spill Contingency Plan, Biological Resource Protection) and TBIO-2b (Oil Spill Contingency Plan, Habitat Restoration) as well as MMs Bio 2a and Bio 2b from the Line 96 EIR would serve to reduce, but not fully mitigate this impact which would remain significant and unavoidable.

Land Use, Planning, and Recreation

PRC 421 Vicinity Impacts: Oil processing would be consolidated at the LFC consistent with City of Goleta General Plan and Santa Barbara County Coastal Plan policies. Enlargement, expansion, or extension of the EOF’s nonconforming use as prohibited by the City of Goleta Municipal Code would not occur. Avoidance of using the EOF would reduce, but not eliminate, potential conflicts with adopted policy identified under Impact LU-1. Oil would still be produced at PRC 421 in conflict with the City’s General Plan Policy LU 10.4, which does not support recommissioning oil production at PRC 421 due to potential impacts to coastal waters. Therefore, Impact LU-1 would remain significant and unavoidable. MMs LU-1a through LU-1c would reduce but not eliminate this potential conflict with the City of Goleta’s General Plan and municipal code.

Similar to the Project, Impacts LU-2 and LU-3 would remain significant and unavoidable, as recreational uses and sensitive resources could be impacted by a low probability small volume oil spill from Pier 421-2 and associated pipelines. Implementation of applicable MMs identified for reinforcement of caisson containment walls and contingency planning and spill response in Sections 4.2, Safety (MMs S-2a, S-2b, S-3, S-4a through S-4e, S-5a through S-5c, and MM HM-3 from the Line 96 EIR); 4.5,
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Hydrology, Water Resources, and Water Quality (MMs HAZ-1a through HAZ-1d, WQ-1a, WQ-1b, WQ-2, WQ-3a, WQ-3b); 4.6, Marine Biological Resources (MMs MBIO-1a, HAZ-1c, HAZ-1d, MBIO-4a, and MBIO-4b); and 4.7, Terrestrial Biological Resources (MMs TBIO-1a through TBIO-1f, TBIO-2a, and TBIO-2b) would reduce these potential impacts, but they would remain significant and unavoidable.

EOF to LFC Pipeline Impacts: Similar to Impact LU-1 from the Line 96 EIR, transportation of oil by the new EOF to LFC pipeline would be consistent with Santa Barbara County’s Local Coastal Program (LCP) policies that require offshore oil production be transported by pipeline. Even so, as identified in Impact LU-3 of the Project EIR, operation of the new EOF to LFC pipeline may result in accidental oil releases that would impact ESHA in the 19 creeks and drainages that would be crossed by this pipeline. Therefore, while this alternative would be consistent with the intent of adopted policy to use pipelines as a preferred method for oil transportation, the low probability of release of substantial oil into creeks that qualify as ESHAs would result in significant and unavoidable impacts. MM WQ-3b (Construction Storm Water Pollution Prevention Plan) and MM MBIO-4a (Oil Spill Contingency Plan) would reduce but not eliminate this impact.

Grading and excavation for construction of the EOF to LFC pipeline, as well as potential oil spills from this pipeline, have the potential to adversely affect agricultural resources and agricultural land uses, similar to impacts discussed under Impacts AG-1 (Loss of Resources, Construction and Soil Disturbance) and AG-2 (Loss of Resources, Pipeline Leak or Spill) in the Line 96 EIR. Implementation of MMs similar to MM AG-1 (Soil Replacement and Replanting) and MM AG-2 (Restoration after a Leak/Spill) from the Line 96 EIR would reduce these impacts to less than significant. Additionally, construction of the EOF to LFC pipeline along the proposed corridor has the potential to result in a loss of prime or organic agricultural land, similar to Line 96 EIR Impacts AG-3 (Loss of Prime Agricultural Land) and AG-4 (Loss of Organic Cultural Land). These impacts would be less than significant, and could be further reduced with implementation of MMs similar to MM AG-3 (Dust Suppression and Fungus Control) and MM AF-4 (Compliance with Organic Standards) from the Line 96 EIR.

LFC Vicinity Impacts: Although production from PRC 421 is not defined as “new production” under the County’s consolidation policy (see footnote under Impact LU-1 in Section 4.8.6), consolidation of oil processing at LFC would potentially be consistent, in part, with the general intent of County LCP policies (e.g., Coastal Land Use Plan [CLUP] Policy 6-6C) which states:

*New oil and gas production from offshore reservoirs or zones shall be processed at facilities approved for consolidated processing to the maximum extent technically and environmentally feasible. Commingled processing shall be required to avoid or reduce project and cumulative impacts -- considering environmental, socioeconomic, safety, and land use concerns -- that otherwise*
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would result from construction and/or operation of redundant processing
capacity, redundant pipelines, or redundant ancillary facilities.

However, this alternative would require construction of a 10.2-mile-long pipeline that
predominantly parallels and replicates the recently completed Line 96 pipeline in conflict
with CLUP policy goals to avoid pipeline redundancy. This alternative would also entail
construction of a redundant oil processing facility at LFC instead of using and
commingling Ellwood offshore production at the existing EOF, albeit a nonconforming
land use, located immediately adjacent to PRC 421-2. Construction and operation of
these facilities would create new significant impacts to biological and water quality
resources greater than those associated with the Project, including impacts along the
EOF to LFC pipeline corridor and within LFC (e.g., Corral Canyon Creek). Therefore,
while consistent with the spirit of Policy 6-6C, this alternative would be inconsistent with
the heart of this policy due to creation of redundant facilities and new significant and
unavoidable land use impacts due to both policy inconsistency and adverse physical
impacts to biological and water quality resources (please refer to Hydrology and Water
Quality and Terrestrial Biological Resources above). Such impacts would also raise
consistency issues with a wide range of LCP policies, particularly those requiring
protection of ESHA and creek water quality. Application of MM WQ-2 (Wetland
Avoidance) and MM WQ-3b (Storm Water Pollution Prevention Plan) would reduce this
impact, but it would remain significant and unavoidable.

In addition to impacts to water quality and biological resources discussed above,
potential oil spills or release of other hazardous materials could be carried into Corral
Canyon Creek and the Pacific Ocean, and adversely affect recreational use of beaches
within El Capitan and Refugio State Parks (e.g., Corral Canyon Beach). While the
potential for such spills is very low and the chance of substantial contamination of
beaches remote, any such oil spill would be considered as a new significant and
unavoidable impact. Application of MMs MBIO-4a (Oil Spill Contingency Plan), TBIO-2a
(Oil Spill Contingency Plan, Biological Resource Protection), and TBIO-2b (Oil Spill
Contingency Plan, Habitat Restoration), as well as Line 96 EIR MM HM-3 (Automated
Block Valves/Additional Check Valves), would reduce but not eliminate this impact.

Public Services

PRC 421 Vicinity Impacts; Operational impacts associated with Impact PS-1 (Adequacy
of Fire Response), would be similar to, but incrementally lower than the Project. While
demand for fire services from Station 11 in western Goleta would increase, impacts
would be different from the Project as oil processing would not occur at the EOF.
However, an additional 9.7 miles of pipeline would be installed in the Station 11 service
area (see discussion below). Therefore, similar to the Project, this alternative would
create potentially significant impacts through incremental increases in demand for fire
protection services in underserved western Goleta area. Application of MM PS-1
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(Impact Development Fee) would reduce, but not eliminate this impact which would remain significant and unavoidable. In addition, similar to the Project, operation of PRC 421 under this alternative could create similar effects to Impact PS-2 (Operation without an Approved Fire Prevention Plan) which would be reduced to less than significant with application of MM PS-2 (Prepare PRC 421 Fire Prevention Plan).

EOF to LFC Pipeline Impacts: Construction and operation of the EOF to LFC pipeline would contribute to increased demand for fire services from Station 11 as described in Impact PS-1 (Adequacy of Fire Response). Similar to the Project, operation of heavy construction equipment and workers engaged in facility construction could lead to injury or fire, requiring emergency response from Station 11. Application of MM PS-1 (Impact Development Fee) would reduce but not eliminate this impact, which would remain significant and unavoidable. The PRC 421 EIR does not identify any additional impacts to public services as none is anticipated for the Project. However, similar to the Line 96 EIR, this alternative would not increase demand for additional public services beyond fire department services, and impacts would be less than significant as described under Impacts PS-2 (Impacts on Water Utility Sewer), PS-3 (Impacts on Sewer), and PS-4 (Impacts on Solid Waste Facilities) in the Line 96 EIR. No mitigation would be required.

LFC Vicinity Impacts: Construction and operation of new oil processing and pipeline facilities in LFC could incrementally increase demand for services from Station 11 in western Goleta, which is currently operating at full capacity. Operation of heavy construction equipment and workers engaged in facility construction could lead to injury or fire, requiring emergency response from Station 11. Ongoing operation of these facilities and increased industrial activity at LFC could incrementally increase demand for emergency medical and fire services from Station 11. Impacts would be similar to Impact PS-1 (Adequacy of Fire Response) and application of MM PS-1 (Impact Development Fee) would reduce but not eliminate this impact, which would remain significant and unavoidable.

Operation of this alternative would also require additional water to be stored onsite for fire protection services. This would require a limited expansion of the existing ExxonMobil fire protection system, which would result in a less than significant impact. However, in the event that expansion of existing facilities is not possible, new water wells, pumps, and tanks, and/or new water mains to connect with existing utility systems would be required, resulting in greater impacts. All improvements would be confined to existing developed areas, which would result in a less than significant impact.

Transportation and Circulation

PRC 421 Vicinity Impacts: Similar to the Project, potential traffic impacts in the PRC 421 vicinity under this alternative would be similar to those identified in Impacts TR-1 (Route Construction Traffic to Avoid Congested Intersections), TR-2 (Operation- Generated traffic impacts) and TR-3 (Adequacy of Traffic Response).
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Traffic, and TR-3 (Increased Potential for Traffic Accidents), with all of these impacts being less than significant. Application of MMs TR-1a (Route Construction Traffic to Avoid Congested Intersections) and TR-1b (Repair/Upgrade any Damage to Access Road) would further reduce Impact TR-1.

EOF to LFC Pipeline Impacts: Construction of the EOF to LFC pipeline would have similar impacts to Impact T-1 (Increased Construction Traffic) from the Line 96 EIR. Application of Line 96 EIR MM T-1a through T1-c that address routing and management of construction traffic would reduce impacts, including those at congested intersections, to less than significant. Operation of the new EOF to LFC pipeline would generate minimal operational traffic with no measurable increases in local congestion or associated long term traffic impacts.

LFC Vicinity Impacts: Construction and operation of new oil processing facilities and the proposed 1.3 miles of pipeline in LFC would create short-term increases in construction traffic and minimal long-term operational traffic. Over a 3- to 6-month construction window, the additional of several dozen new trips per day to Hwy 101 would incrementally increase the more than 30,000 average daily trips on this highway, but would create no noticeable increase in congestion. Access to the site from Hwy 101 would be via the El Capitan Ranch or Refugio Road interchanges, as no direct access off of Hwy 101 is available. Impacts would be less than significant with development and implementation of a Traffic Management Plan to control traffic flows, especially movement of larger trucks into and out of the site.

Operation of new facilities at LFC would result in an incremental increase in traffic, with traffic increases of less than 20 to 30 trips per day; impacts would be insignificant as such volumes are minor in comparison to the capacity of area roads. Additionally, the existing roads within LFC currently provide adequate access for industrial trucking demands (i.e., land widths, turn-around radii, etc.) and, therefore, no upgrades would be required to serve the additional trips anticipated under this alternative.

Noise

PRC 421 Vicinity Impacts: Noise impacts in the vicinity of PRC 421 associated with construction and operation of this alternative would be similar to the Project. Short-term noise impacts identified by Impact NZ-1 (Construction Impacts to Recreational Beach Users and Golfers) would be less than significant, with application of noise reduction measures set forth in MM NZ-1a (Sound control Devices), MM NZ-1b (Additional Best Management Practices), and MM NZ-1c (Buffers) further reducing this impact. Operational impacts identified in Impact NZ-2 would remain less than significant as ongoing noise levels would not be noticeably increased.

EOF to LFC Pipeline Impacts: Construction of the new EOF to LFC pipeline would create short-term increases in noise due to operation of heavy equipment similar to
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Impact N-1 (Noise from Pipeline Construction) from the Line 96 EIR. Application of MMs N-1a (Noise Reduction Plan) and N-1b (Boring Noise Reduction Measures) would reduce impacts to less than significant. Pipeline operation would generate limited noise increases associated with periodic vehicle traffic, which would be infrequent with negligible noise impacts.

LFC Vicinity Impacts: Construction and operation of new oil facilities in LFC would incrementally increase short- and long-term noise levels in LFC and the vicinity. Construction would generally be well removed from sensitive receptors, which include limited rural residential uses along Calle Real west of Coral Canyon and park users/beach goers at El Capitan State Beach across Hwy 101 to the south and east. Potential impacts would be less than significant due to the distance from sensitive receptors and application of MM NZ-1a (Sound-Control Devices), MM NZ-1b (Additional BMPs), and MM N-1a (Noise Reduction Plan) from the Line 96 EIR. Since operation of the new oil processing facility would produce low noise levels within an industrial area well removed from sensitive receptors, impacts would be less than significant.

Aesthetics/Visual Resources

PRC 421 Vicinity Impacts: Construction activities and equipment, operational upgrades at Pier 421-2, and the decommissioning and removal of Pier 421-1 would occur, similar to the proposed Project. Visual impacts of construction and operation of this alternative in the vicinity of PRC 421 would be similar to those described in Impacts VR-1 through VR-4. Application of construction management MMs VR-1a through VR-1e would reduce Impact VR-1 to less than significant. Impact VR-2 (Visual Effects of Accidental Oil Spills) would remain significant and unavoidable due to the possibility, albeit with a low probability, of a small oil spill along the shoreline; application of MMs associated with reducing oil spill risk and facilitating clean up would reduce, but not eliminate this impact (i.e., MMs identified in Safety; Hazardous Materials; Hydrology, Water Resources, and Water Quality; Marine Biological Resources; and Terrestrial Biological Resources). Removal of PRC 421-1 would remain beneficial under Impact VR-3, while impacts associated with visual changes to Pier 421-2 would remain less than significant under Impact VR-4.

EOF to LFC Pipeline Impacts: Visual impacts of construction of the EOF to LFC pipeline would be similar to Line 96 EIR Impact VR-3 (Visual Effects from Pipeline Construction), including those associated with equipment operation, VR-4 (Visual Effects from Pipeline Installation), including loss of vegetation with construction, grading, excavation, and vegetation removal occurring within the view corridor of Hwy 101, and VR-6 (Visual Effects from Accidental Spills). Impact VR-3 would be short-term and less than significant, Impact VR-4 would be less than significant with inclusion of MM VR-4 (Revegetation of Pipeline Right of Way), and Impact VR-6 would be less than significant. Application of MMs associated with reducing oil spill risk and facilitating
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clean up, such as MM MBIO-4a (Oil Spill Contingency Plan) and Line 96 EIR MM HM-3 (Automated Block Valves/ Additional Check Valves), would further reduce these impacts.

LFC Vicinity Impacts: Construction and operation of new oil facilities in LFC would occur within existing developed areas in Corral Canyon, which has an existing industrial character, including large-scale oil processing facilities that are not highly visible from public roads or view points, with exception of the Bill Wallace Trail to the east and West Camino Cielo to the north. Though viewable from Bill Wallace Trail and West Camino Cielo, any changes from this alternative to these areas would be consistent with the existing setting and not generally noticeable from distant viewpoints. Therefore, potential aesthetic/visual impacts would be less than significant.

Cultural, Historical, and Paleontological Resources

PRC 421 Vicinity Impacts: Ground disturbance due to pipeline construction from PRC 421-2 to the EOF would have the potential to adversely affect cultural resources. These cultural resource impacts in the vicinity of PRC 421 under this alternative would be similar to the Project. Impact CR-1 would remain less than significant with application of MM CR-1 (Cultural Resources Monitor). A potential oil spill from PRC 421 facilities or from the new pipeline from PRC 421-2 to the EOF could result in primary impacts to undiscovered cultural resources from contamination, or secondary impacts related to spill cleanup activities. An accidental oil spill from PRC 421 facilities would be similar to Impact CR-2, which would remain less than significant due to small spill size and limited potential for direct or indirect impacts to cultural resources.

EOF to LFC Pipeline Impacts: The EOF to LFC pipeline would traverse 8.4 miles along the Gaviota Coast, and extent that contains an estimated 45 prehistoric and historic archaeological sites within 0.25 mile of the pipeline route. At least four recorded archaeological sites, CA-SBA-139, CA-SBA-83, CA-SBA-1676, and CA-SBA-1733, are located within the potential pipeline corridor. Construction of this pipeline could alter or destroy significant cultural resources similar to Impacts CR-2 through CR-4 from the Line 96 EIR. Application of MMs similar to MM CR-2a through MM CR-2d and MM CR-4 from the Line 96 EIR would reduce impacts to less than significant, particularly with requirements for pre-construction surveys and rerouting to avoid cultural resources. Impacts to cultural resources related to an oil spill from the new pipeline and clean up would be similar to Impact CR-5 from the Line 96 EIR, but would be less than significant with inclusion of Line 96 EIR MM CR-1b (Pre-construction Workshop), which would train crews to avoid damage to cultural resources.

LFC Vicinity Impacts: Construction of the new pipeline and oil processing facilities in LFC may create impacts similar to Impacts CR-2 through CR-4 from the Line 96 EIR, as there are multiple known archaeological sites in LFC proximate to or underlying
developed pads, particularly near the confluence of Las Floras and Corral Creeks and, to a lesser extent, at the mouth of Corral Canyon (Science Applications, Inc. 1984). Impacts to cultural resources could occur from subsurface trenching, grading, or construction of concrete pads or pipeline caisson supports in areas of known subsurface archaeological sensitivity, including buried archeological resources east of Corral Creek and on adjacent uplands. Any ground disturbance in areas overlying known archeological sites would be subject to review and approval by a qualified archeologist, which may include Phase II testing and avoidance as determined appropriate. Implementation of MM CR-1 (Cultural Resource Monitor) would ensure construction is monitored. With this mitigation, this impact would be less than significant.

Energy and Mineral Resources

PRC 421 Vicinity Impacts: Similar to the Project, this alternative would increase energy demand in the vicinity of PRC 421 related to construction of pipeline from PRC 421-2 to the EOF and ongoing oil and gas operations, but would not substantially conflict with energy conservation plans adopted by the State of California. Under this alternative, electricity use at Pier 421-2 would incrementally increase due to a more powerful ESP. Any decrease in energy demands resulting from not processing oil at the EOF would be offset by increased energy demands for processing at LFC (see LFC Vicinity Impacts below). Overall energy demand under this alternative would remain modest and Impact EMR-1 would remain less than significant. Oil production under this alternative would be similar to the Project and Impact EMR-2 would remain less than significant as this level of oil production would not substantially affect renewable energy markets, conflict with State energy conservation policies, or impede development of renewable energy.

EOF to LFC Pipeline Impacts: Pumping the oil/gas/water emulsion through 8.4 miles of this new EOF to LFC pipeline would incrementally increase demand for electricity under this alternative; however, demand for electricity would be modest and Impact EMR-1 would remain less than significant.

LFC Vicinity Impacts: Construction of new oil production facilities would entail short-term increases in demand for gasoline, diesel fuel, and electricity; however, such demand would be short-term and therefore less than significant. Operation of new oil processing facilities, pumping of the oil/gas/water emulsion through 1.3 miles of new pipeline, and increased throughput of gas at the existing POPCO facilities would increase demand for electricity, similar to the Project. Energy demand is expected to be higher to operate a new facility at LFC instead of increasing throughput at the EOF; however, this increase is expected to be incremental and Impact EMR-1 would remain less than significant.

Electrical power is expected to be provided onsite by Exxon; however, if this is not possible, increased demand for electric service in LFC may require obtaining power from PG&E with extension of a new power line up Corral Canyon. While increased
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power demand would not be significant, depending on design, construction of a new power line may have secondary impacts (e.g., cultural resources, terrestrial biological resources). Mitigation measures that require use of existing facilities, routing power lines through previously disturbed areas, and performance of cultural and biological resource surveys and required mitigation/avoidance would reduce secondary impacts to less than significant levels.

Socioeconomics and Environmental Justice

PRC 421 Vicinity Impacts: Potentially impacted populations would include recreational beach goers in the vicinity of PRC 421 and golfers at Sandpiper Golf Course, similar to the Project. Potential users of the beach could come from any ethnicity or income level while users of Sandpiper Golf Course are likely to be comprised of upper-middle class and upper-class income levels. These do not represent discrete disadvantaged populations and no disproportionate socioeconomic environmental justice impacts would occur.

EOF to LFC Pipeline Impacts: The new EOF to LFC pipeline corridor is located away from densely populated areas and would cross private lands and areas generally not frequented by the public. Potential oil spill impacts may affect people from any ethnicity or income level and are not expected to disproportionately impact disadvantaged populations; therefore, no socioeconomic and environmental justice impacts would occur.

LFC Vicinity Impacts: Up to a 1.5-acre oil processing facility and 1.3 miles of pipeline would be developed within the 113-acre LFC consolidated oil and gas processing facility, located approximately 15 miles west of the City of Santa Barbara, approximately 10 miles west of the City of Goleta, and 1 mile north of Hwy 101. This remote location is not proximate to disadvantaged populations and construction and operation of this alternative would not disproportionately affect a disadvantaged population; therefore, no socioeconomic and environmental justice impacts would occur.